

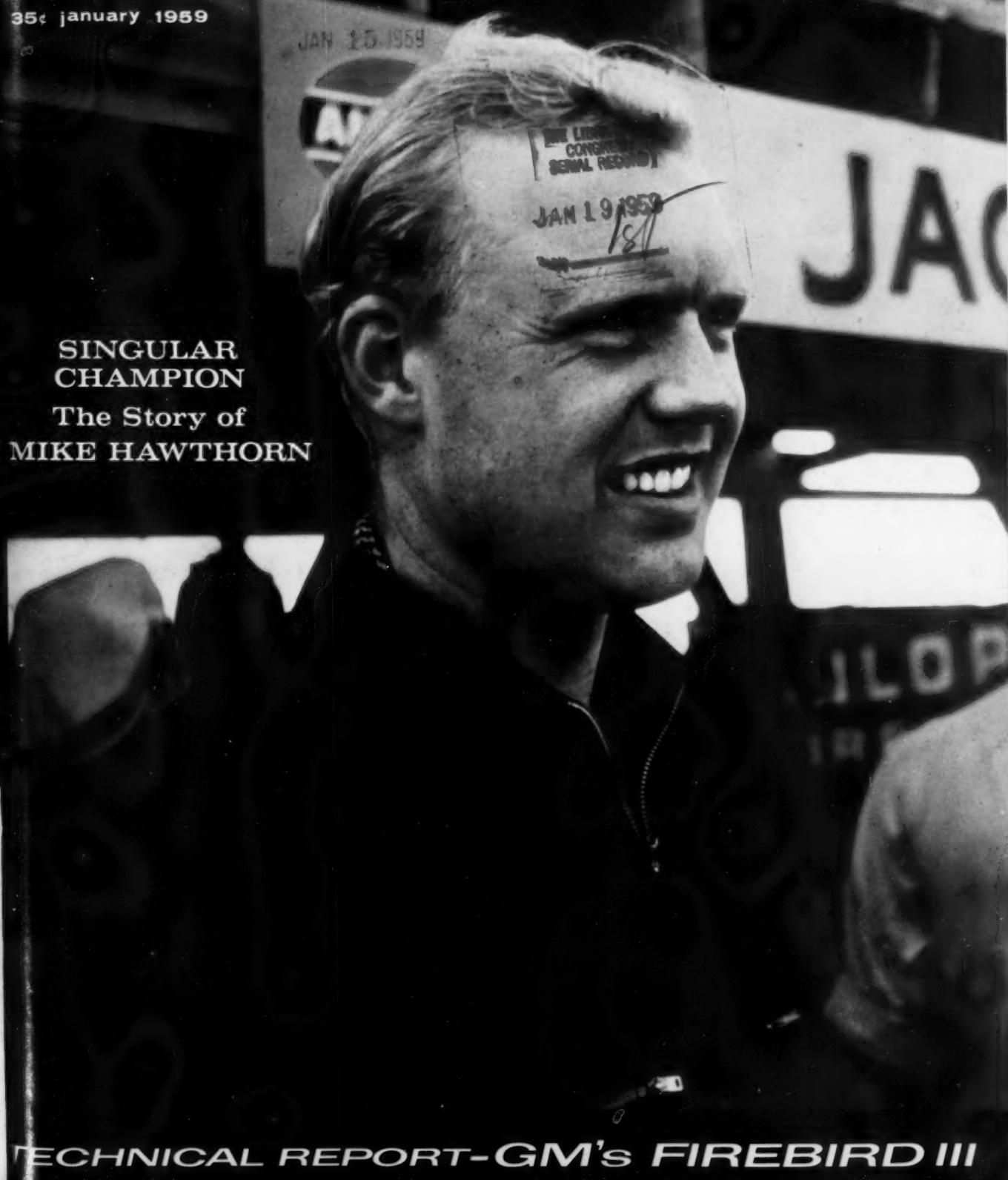
SPORTS CARS ILLUSTRATED

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The Story of
MIKE HAWTHORN



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SPORTS CARS ILLUSTRATED

CONTENTS

road tests

Fiat 1100 TV	22
Auto Union 1000	40

special feature

Chevrolet 315	Griff Borgeson 28
or, how to go superfast and save \$13,000	

features

Singular Champion	Denise McCluggage 16
<i>The story of Mike Hawthorn</i>	
Ah Well, the Americans!	Roger A. Proulx 26
<i>Frenchman meets MG-TC</i>	
Gunn Metal	Dennis May 44
<i>The Lagonda story</i>	

technical

A-H Sprite	Len Griffing 12
<i>Sequel to a track test</i>	
Firebird III	Stephen Wilder 32
<i>General Motors goes all out</i>	

competition

Frantic Finale	Jesse Alexander 20
<i>The Morocco GP</i>	
Midwest Monster	Dic Van der Feen 30
<i>Meadowdale opening</i>	
American Road Racing Comes of Age	Jim Mourning 37
<i>Riverside</i>	
The Word, Sir, is "Pree"	Jesse Alexander 42
<i>Monza: The Italian GP</i>	and Karl Ludvigsen

departments

Very Sincerely Yours	6
Letters	8
Technotes	10
New Products	14

January 1959

No. 7 Vol. 5



That smiling towhead on this month's cover is the new Champion of the World. For an introduction to Mike Hawthorn, turn to P. 16. Kodachrome by Tom Burnside.

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One look at this '59 Chevrolet tells you here's a car with a whole new slant on driving. You see the transformation in its low-set headlights, the overhead curve of its windshield, the sheen of its longer lasting Magic-Mirror acrylic finish.

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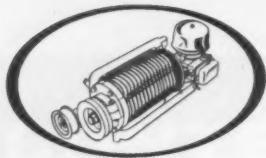
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JUDSON

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very sincerely yours:

THE PLACE: MONZA, the time, late summer. Howling down the straight came the violet-painted American car. In a scarce ten laps the husky Yank driver, starting in dead last position, had herded his machine through a pack consisting of the best Europe had to offer. It was the first of three heats and the American car looked like a shoo-in. Earlier he had kicked the track record to pieces and now he had gone by Italy's best as if the Italian had been bolted to the road.

Then an oil line blew and the American machine drew to a stop.

But he had made his mark, had gone faster and handled better than anything else in the field.

The 500 Miglia de Monza? No, sir. The '58 GP of Italy? Not at all — that's run all in one heat. A pipe dream? Definitely not. What was it then?

This was the Monza Grand Prix of 1929, one of Europe's Golden Era classics; the man was Leon Duray, America's hottest driver. The car? An all-American Miller 91, the Packard Cable Special.

In this issue you'll find the story of the Monza Grand Prix as it is run today. It's a latter-day invention. The truly traditional Monza Classic is the so-called Race of Two Worlds, the 500 Miglia, run like it is today in three heats and then as today an event that recently moved British journalist Denis Jenkinson to remark "This is motor racing, all else is a demonstration of driving skill." And then as today it brought the greats of two continents together.

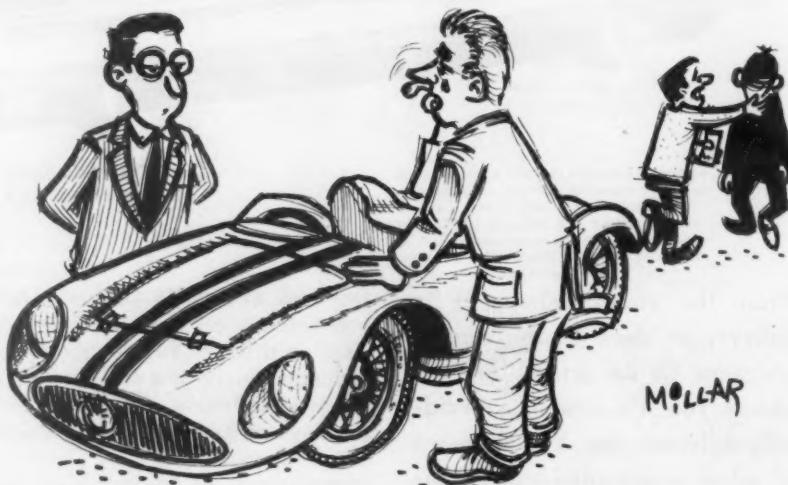
Duray did such a fantastic job with fabulous Millers at Montlhery and Monza that a French magazine was virtually forced to admit quite bluntly that the Miller 91 was years ahead of anything on the Continent. Someone else apparently thought so too. That someone was Ettore Bugatti who forthwith bought Duray's two Millers and used them in developing the 50-series twin cam Bugs of the Thirties.

Coming up shortly will be the full story of how Duray did it and what he did it with.

It could just happen again.

john christy

OH YEA!



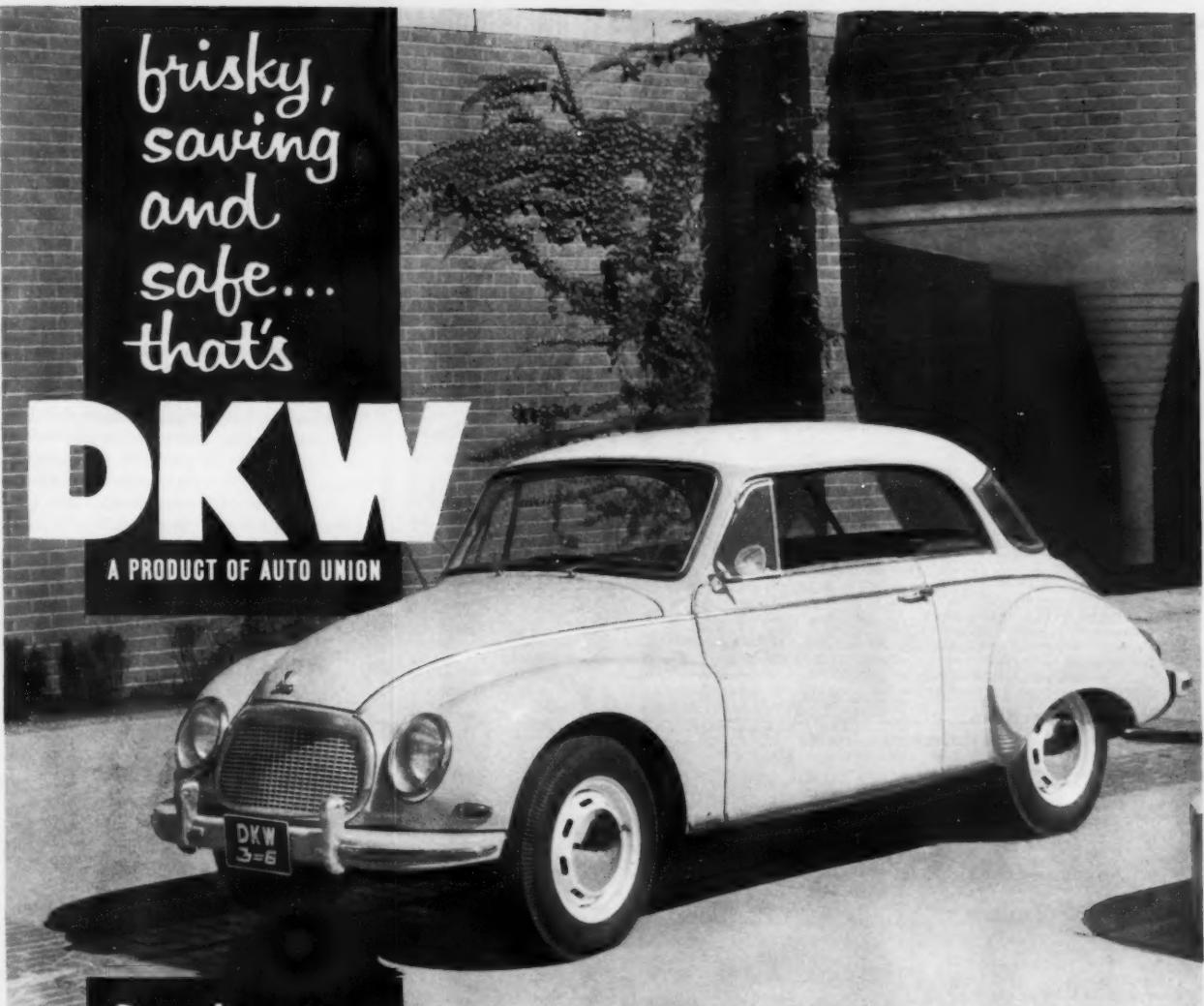
"WOULD YOU BELIEVE ME IF I TOLD YOU THAT A LITTLE OLE SCHOOL-TEACHER FROM PASADENA USED THIS BABY FOR A SCHOOL BUS? . . . NOW I'LL TELL YA WHA I'M GONNA DO . . ."

"DON'T TAKE IT SO HARD FANGIO . . . YOU CAN'T WIN 'EM ALL . . ."

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2 BLACK GLOVES have the same fine tailoring and materials but are midnight black in color. Sizes: 7 1/2-10 and 6 1/2-7 1/2. \$6.95 pr.

3 LESTON GLOVES feature cape palms and crocheted backs with leather finger tips. Sizes: 7-10. \$6.50 pr.

4 WIND WINGS can be attached without drilling or special tools, do not interfere with top or curtains. Crystal clear, shaped to compliment lines of car. For MG TC TD TF & A. \$15.95 For Triumph TR 2 & TR 3. \$16.95 For Austin Healey & Mercedes \$17.95 For Jaguar. \$19.95

5 ASH TRAY for MGA fits on driveshaft tunnel between gear change lever and armrest. Black crackle and polished aluminum finish with MG crest. Handy, easy to clean. \$5.95

6 TRIUMPH ASH TRAY for TR2-3 fits in driveshaft tunnel cutout, easily removed for greasing U-joint. Cast aluminum, black crackle finish. \$5.95

7 ASH TRAY & LIGHTER COMBINATION for MGA has sturdy black leatherette covered case which houses deep ash well and automatic lighter unit. Fits between armrest and gear lever. \$8.95

8 RACING SPOKE PLATES add a competition touch to the steering wheel. Heavy chromed steel, won't rattle, no tools needed to install. For MG TD TF \$2.95 set

9 WHEEL MEDALLION for center of MG steering wheel. Flat, chromed, sparkling, takes MG center button (TD TF only). \$3.25 ea.

10 KEY FOB to match your marque. Most imported and American car insignias (backed by leather) in stock. Specify make. Colorful, beautiful, practical. \$1.50

11 SPARKPLUG HOLDER retains spare set of plugs in pristine condition, protects electrodes. For 14mm short or long reach. Buffed aluminum. 4-Plug holder. \$2.95
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12 SHIFT KNOB of polished aluminum. Smooth, handy, good looking, fits any make of imported car (specify). Two sizes: 1 1/2", 1 3/4" (specify). \$2.25

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15 LUGGAGE RACK crafted from highly polished hardwood and bright chrome plated tubing. Fits on deck of MGA, TR & Healey with powerful suction discs and web straps. Can be removed in seconds. State make and year when ordering. \$24.75 (plus \$2.00 postage)

16 CORVETTE & T BIRD RACK. Made

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17 MGA GRILLE GUARD can save that \$75.00 grille from the ravages of Detroit iron. \$19.95

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20 MGA FLAP STAY is a small chromed goodee that holds curtain flap up for ventilation and signalling. \$3.95

21 MG MITTEN CATALOG has lots of interesting items and good things for car and driver. \$FREE

22 DRAGEN TIRE GAUGE is preferred by those who take tire pressures seriously. Highly accurate, big dial indicator, reads in atmospheres as well as psi. \$6.95

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25 FLARE RACK holds two road flares till needed. \$2.25

26 NYLON TOW ROPE is strong, easily handled, has clip ends and its own case. \$7.95

27 FAMOUS MITTENS protect thousands of cars from the ravages of sun, grime, fog and smog, birds, dirt and pollutants in the atmosphere. The smart owners who keep their cars covered at all times get the most money at trade in time. SEE NOVEMBER ISSUE OF THIS MAGAZINE FOR FULL DETAILS OF OUR FABULOUS NEW FABRIC AND ENTER OUR CONTEST.

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28 BUBBLE SHIELD racing visor gives full vision, doesn't fog, lift or vibrate at high speed. Snaps onto Bell Helmet, snaps can be fitted to others. Clear \$4.95
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29 BELL 500 TX HELMET has non-resilient liner as specified by Snell Fund study, fullest protection \$36.50
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30 TOPTEX HELMET (not shown) competition model is approved by all racing authorities — with visor. \$33.25



31 MOBILE MAGNETIC ASH TRAY is always on the level in car or shop. Silver, gold, blue, green \$1.85



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letters

WE AGREE

In reference to your article on "Le Petit le Mans": The spectator who loaned his Sunbeam Rapier, as a parts car, to Peter Brown, was William Desseret. His car was a 1957 rather than a 1958 and the brakes, if I remember correctly, are a different size. I don't know what was done to remedy the situation but it sure helped to make things interesting.

Both Mr. Brown and Mr. Desseret showed extremely good sportsmanship and should be congratulated for same. We seldom see this kind of cooperation and dedication any more. More power to them.

John M. Peckham
Mercedes-Benz Club
of America, Inc.
Troy, N. Y.

WHEEL BOLTS

Why does Lou Comito use only two of the four lug bolts to hold one of his wheels? Since he races in the SCCA, I don't think they allow those kind of things. If you're wondering what I'm talking about, look at the close-up of the Alfa wheel in the Veloce road test in the October issue. Could it be he wants to save time at pit stops?

John Fobian
Milwaukee, Wis.

Lou isn't the lazy one, it was the photographer who was in too much of a hurry to replace all of the nuts after taking the pictures of the suspension. Incidentally, the wheel was on a new Alfa at Hoffman's parts and service department.—Ed.

C'EST LA VIE

Your test on the ID 19 Citroen was well done. Your reporter should have asked one more obvious question from Mr. Manicucci as I did in addition as to where were the temperature gauges—oil pressure gauges? I also asked where was the oil filter and they stated that Citroen did not believe in them. Also I asked where the fuse box was and they replied "We do not believe in fuses as without them if a light goes out you know that it is the bulb, not a fuse" very logical but what about a fire?

Have driven my DS 19 for a year, and a better handling car I have never sat in, this after 40 years of most American Cars in addition to many imported marques. It is the greatest driving thrill extant to take the DS 19 thru a winding mountain range, particularly with dirt roads and even with snow and ice.

But you sure have a hard time getting your questions answered even when you have bought a factory manual (in English) no one seems to know why the rear tires soon get uneven treads while the front ones wear smoothly — also they just grin when you ask why there are arm rests on all the doors except the drivers . . . Most unusual nonchalance.

Ralph Gould
Cape Elizabeth, Maine



I have just read your article on "The Saga of the Beetlewagen" in the November issue.

Being the proud owner of a Volkswagen myself I got quite a chuckle from your article and I praise the fellow and admire his Beetle very highly.

If it is at all possible could you give me the name and address of this "sneaky" fellow that I might ask him more about his car. Even if he won't tell me his complete secret he might give me a few hints or suggestions.

I am seventeen and interested in all kinds of automobiles but particularly Volkswagens. Many of my friends have the fin-tailed jobs and pull the same stunts that you mentioned when they see me. I must admit it does get me mad but when I stop and think about it I won't trade my Beetle for their "stix-pac bucket of bolts" today or any day. Thank you.

Tom Trotman
Detroit 41, Michigan
N. J.

As three loyal readers of S.C.I., we will only say that we like your magazine very much.

However, we, and several others we know, feel that your October issue missed the boat in one respect. It was very honoring to see that a N. J. sports car club won your award, but you should have mentioned the one man in N. J. who almost by himself has doubled or tripled sports car clubs, club membership and club activity, not to mention sports and foreign car sales and public acceptance in this state. He recognized the importance of small clubs like ours long ago in this sport and has given us a terrific boost by concentrating almost completely on small-club activities.

He is Shel Wolfson, who writes for the Newark Evening News. He certainly should rate a mention from you, we feel. As a matter of fact, he founded and is first president of the N. J. Council of Sports Car Clubs, which is going great guns.

We will be anonymous since he would shoot us if he knew we wrote you.

3 readers

Mr. Shel Wolfson has called our office on numerous occasions to offer assistance with regard to sports car activities in New Jersey. For this we thank him sincerely, and ask apologies for this belated recognition. — Ed.

COPS AND . . .

I am getting sick and tired of hearing about some soreheads complaining about the police and their unfairness to sports car drivers.

I have been given two speeding tickets while driving my TR3, and at least a half dozen warnings.

On one occasion when I was giving my explanation for my misbehavior, the officer apologized and said that I probably wasn't going as fast as I appeared to be, and that the small racy design and the loud exhaust of the car made it appear to be going much faster than it really was.

How's that for fairness?

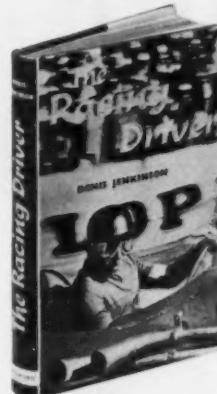
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181	Official MGA Factory Manual	\$10.50
57	Complete Jaguar Factory Service Manual for MK VII and XK 120 Models. For XK 140 owners also.	\$12.50
48	Austin Healey 100-4 Factory Service Manual Thru '56	\$12.50
3	Austin Healey 100-6 Factory Manual	\$12.50
46	Marschalk Rally Speed Figure-Ooter	\$10.00
179	Stevens Rally Indicator Model 25 most accurate computer available, 9-inch diameter	\$14.00
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84	Volkswagen Owner's Handbook	\$2.00
151	Modern Sports Car by McCahill	\$3.95
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TECHNOTES

COLD AIR BOX

I would like to build a cold air box for my Austin-Healey 100-Six. Could you give me information on this?

Richard Bemb

For everyday use, at low speeds as well as high, a cold air box is certainly useful. It enables the carbs to inhale air which has not absorbed heat from the radiator or the engine itself and is therefore denser. In the heat of summer, this one change may add several handy horsepower right across the rev range.

The cold air box should look like a chunky log. It runs lengthwise past the carburetor intakes and is fastened tightly to them. This "log" should be some three or four inches in diameter, though it isn't really necessary for it to be circular. The forward end should either be right out in the open air, that is, outside the body contours or else should connect with a duct such as is commonly used for a heater system. This duct may run forward to a point just behind the radiator grille but ahead or to one side of the radiator.

DEAD STORAGE

I am going overseas on military duty but I am unable to take my Porsche with me. As I do not wish to sell it, how should I go about storing it?

Gordon J. Tucker
San Francisco, Calif.

Get your engine thoroughly warm through hard driving, using plenty of revs. Park it where you're going to jack it up. Shut off gas supply and rev engine freely until the carbs run dry. Remove all spark plugs, pour in two or three ounces of ordinary engine oil of high quality, then crank engine over several times to distribute this over the cylinder walls. Immediately drain engine oil, while it's still hot. Replace drain plug, refill with clean oil and jack the car up on blocks. If your car were water-cooled, now would be the time to drain that, too.

Tires, incidentally, should be stored in a cool, dry room, i.e., not in an unheated garage and not next to the furnace. Some wives complain about having them under the kitchen table but if you're truly persuasive, you may win out.

About once a month the battery should be trickly charged. Concurrent with this, it would be fine to crank the engine over a few times to circulate some oil.

When you want to get back into action, refill and replace everything mentioned above. But before actually starting the engine, crank it over until normal oil pressure appears on the gauge or the oil warning light goes out. If your car starts off the ignition key, remove the distributor rotor in order to crank the engine on the starter without firing it up. Once the fresh oil has been spread around, then your engine is ready to go. If it won't, check the distributor for moisture and the plugs for fouling. And as the Esso people say, Happy Motoring.

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**AUSTIN
 HEALEY
 SPRITE**

LAST MONTH we outlined what can be done to a production Sprite to bring it to SCCA "Production". We hinted there was more. There was, we did it, and here it is.

It began with a three-way conference among Joe Virag, Foreign and Domestic Service in Wespert; Bob Said, idea man with the Nisonger Corp.; and SCI editorial. Since Nisonger was going ahead with their BMC A-35 engine hop-up kit, Nisonger would supply the parts. Foreign and Domestic Service was to design and build the kit, and SCI was to supply the Sprite. We gave Joe Virag the same car we had brought up to competition tune (SCI-Dec. '58).

Basically, any hop-up involves jamming a greater weight of air/fuel into an engine: more oxygen, more power. Since the casting thickness of the Sprite intake manifold prohibited drastic enlargement of its inside diameter, it became necessary to figure out an alternate. An all-new casting would be a cost item.

Though the ports in the cylinder head are ample, installing big-throat carbs that feed into a smaller-diameter intake manifold didn't seem right.

The answer was to make a tapered adaptor. One was needed anyway to accommodate the different bolt pattern on the new carbs. Joe fabricated a two-piece adaptor from 3/4-inch Dural. One section located stud holes to mate with the manifold; the other to mate with the big pots. The two flanges were bolted to each other by countersunk screws. Thus, flat sides were presented to both manifold and carbs.



After securing the flanges together, the piece was set into a lathe. A tapering port was bored through the now 1 1/2-inch thick plate. The small end mates with the approximately 1 3/16-inch diameter manifold. The larger end aligns with the carburetor throat.

We had changed the entire power curve of the engine. Below 2000 rpm we now had very little power. We could cruise under 2000 rpm, but any acceleration first choked up the engine, though it cleared out as speed increased. Downshifting became necessary at lower rpm.

Sequel: Hop-Up



But after 2000 rpm the power comes in strong. And it gets stronger and stronger as the engine winds to its peak. Now, peak power is reached at 5900 rpm.

This is worth considering. Though the stocker is red-lined at 6000 rpm, it peaks at only 5000. When you've got only a rated 48 horses, you don't have much left after the power peak. Fact is, you've got to wind the stocker up to red-line it in third. It will not exceed 51-52000 rpm in fourth. This means a 60 mph shift point from third-to-fourth, and a top speed of about 80 mph. Possibly 85 mph, under ideal conditions on a long straight.

Our Sprite, now that it could breathe, walked right up to 5900 rpm, and then on to 6900 with only slightly more strain. This means a third-to-fourth shift point at about 70 mph, and a fourth gear power peak (5900 rpm) at 89 mph! The stock cam (which we retained) drops power off sharply nearing 6900 rpm, but if you could nurse the Sprite that far under favorable conditions, it's theoretically equal to 104 mph!

Fourth gear is a new dimension. Anywhere between thirty and seventy, mashing the accelerator produces action. It's possible to just leave the machine in fourth, for even on hills downshifting just isn't so necessary. For this reason, a gallon of gasoline lasts just about as long as it did before.

Engine longevity should not suffer, either. Taking more than the factory-designated power from an engine has to be accomplished by increasing the combustion pressure, increasing the rpm through increased breathing efficiency, or a combination of both. Our system uses the third method.

Since the power peak is raised by 900 rpm, these revs can be used. And, we believe, without difficulty in a balanced engine. Also, because the combustion chamber has been cleaned up and the hot spots removed, the additional pressure (and heat) can easily be tolerated.

How to get one? Nisonger is setting up machinery to take your stock A-35 head, manifold and carbs. They will send you the reworked components exchange.

It won't be unreasonable, but needless to say it will not be an even swap.

Len Griffing

ACCELERATION:	Stock	Hop-up
0.....	6.0	6.0
10.....	10.5	9.6
20.....	15.9	14.8
30.....	25.2	20.4

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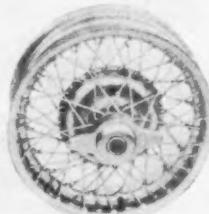
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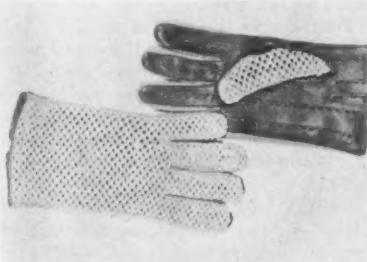
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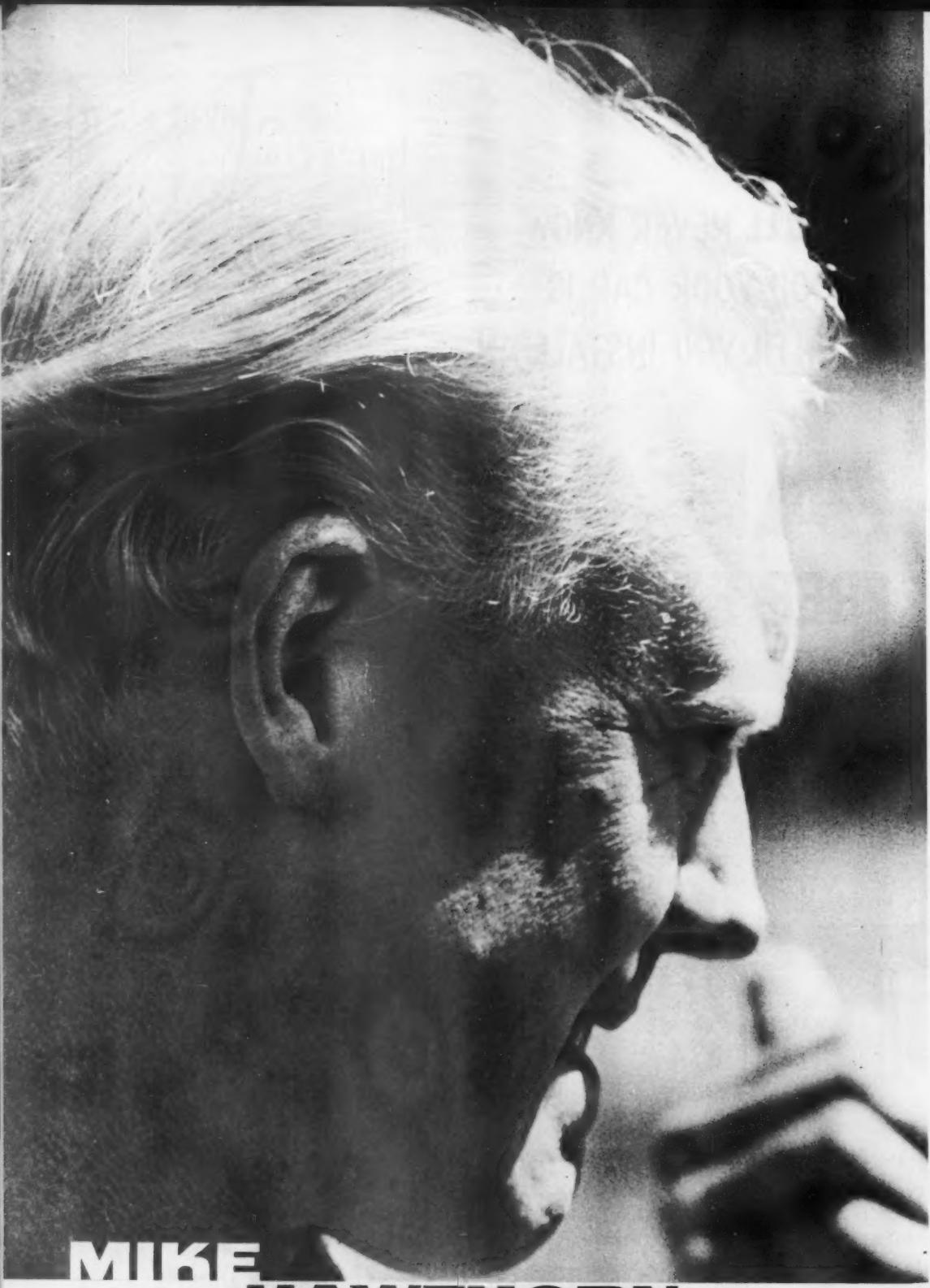


Photo by Ernst H. E. Richartz

By
Denise
McCluggage

MIKE HAWTHORN- SINGULAR CHAMPION



Autosport

THE LATE MARQUIS de Portago in an interview two years ago was passing judgment on various Grand Prix drivers and marking the ones he thought most likely to succeed to Fangio's throne. One famous name he dismissed with a shrug:

"He's too hard to classify. He's erratic. He seldom finishes. He never takes care of himself".

If Portago were alive, he would have seen the driver he voted least-likely-to-succeed become the 1958 driving champion of the world. But he would be no more surprised than the tall, tow-headed wearer of the crown, Mike Hawthorn, himself.

Not that Hawthorn had not aspired to the championship. All drivers do. He had just never been particularly identified with the aspiration — not as his countryman, Stirling Moss. Moss was called "The Crown Prince of Motor Racing", the obvious successor to Juan Manuel Fangio to whom he was three-times runner-up. With Fangio's semi-retirement, 1958 looked to be Stirling's year. But it did not work out that way. And thus to the son of a Farnham garage-owner goes the honor of being the first World Champion from Great Britain.

"I'm glad to see Old Mike pull this off", said a British enthusiast after the Grand Prix of Italy when only a miracle in Morocco could salvage the championship for Moss. "He goes at this motor racing as it should be done. He doesn't give a damn". Which indeed is the outward impression given by the big, square-jawed Briton. But whether under that indifferent surface lurks a will-to-win which would frighten even the most serious followers of the circuit is anybody's guess, because Mike Hawthorn is not a simple man.

Louise Collins said in Rheims a month before her husband's death: "Peter and I probably know Mike better than anybody else and yet we are constantly surprised by new moods and new faces. If you meet Mike in one mood, he will charm you — you'll absolutely love him. But if you meet him in another mood, you can hate him".

This moodiness, these many faces, are manifested in Hawthorn's driving. At one extreme he is capable of being almost mediocre. Of being insensitively brutal to fine machinery. At the other extreme he is brilliant. There are those who say that at Mike's most inspired not even Fangio can touch him. And Fangio, that modest man, may well agree. Early on, the Champion from Argentina recognized the exceptional talent of the Englishman and said, that of all the drivers, Hawthorn was the one he feared. Perhaps he was recalling the fabled 1953 Grand Prix of France at Rheims and the taut three-hours of wheel-to-wheel combat with Hawthorn winning by inches.

Yet those who say "Hawthorn is great — when he wants to be", do not say it all. Hawthorn apparently has no conscious control over his "wanting to be". Hans Tanner, a knowledgeable writer of the racing world, drove with Mike during practice for the 1953 Mille Miglia. "There are two levels to Mike's driving", Hans said recently. "On one level he is — well, good. Very good. Always better than competent. But on that other level, he transcends himself. He merges with the car. He almost goes into a trance. And it has

nothing to do with what he consciously wants. On certain days, he simply has it and that's all there is to it. And if you have ridden with him on one of those 'second-level' days, you know you have ridden with genius".

When Hawthorn does not like a race, a circuit, a car — or when is not "on", he would just as soon be out of it altogether. Very often the car obligingly breaks, not that Mike consciously sets about sabotaging it, but a car after all is a highly sensitive extension of the driver. When the driver is not "on", he is at odds with his machine as well as himself and a shift can be missed, a clutch slipped, a car damaged, all too easily.

Mike did not like the Mille Miglia. Not one bit. He had not gone far before one of the master cylinders on the Ferrari gave out and he was left with only front brakes. He was far from unhappy about retiring. (And then the rear-end broke on the way back to Modena). No one could ever induce Mike to try the Mille Miglia again.

He felt much the same about the Targa Florio, that race around 48 miles of Sicilian roads, which he did for the first time in 1958, and the 500 Miglia di Monza shortly thereafter on the banked oval. "Well, that's two things I've tried this year that I will never do again", he said flatly after Monza.

His first time out in practice at Monza in the 4.1 Monoposto Ferrari that had been specially whipped up for the 500 Miles, Mike came in trembling like an aspen leaf. "Did I break the lap record", he gasped, only half-facetiously. (He hadn't been near it). "Why are you trembling? Are you cold?", he was asked. "Hell, no. I'm frightened", he replied. And he believed it. As it turned out the trembling was muscle tremors from the unfamiliar effort of holding the Ferrari straight — its chassis was ill-suited to the bumpy oval. The trembling disappeared after he stopped fighting the car's every twitch and learned to permit the Ferrari its jumping about like spit on a hot stove. Still he did not like Monza, and was delighted when "Uncle Phil", as he calls Phil Hill, took over the lion's share of the driving chores along with an assist from Luigi Musso.

Mike plainly prefers Grand Prix driving to any other kind. Long sports car races do not bring out the best in him, although he has won both Sebring and Le Mans with Jaguar (both in 1955). He seldom finishes them any more. At Le Mans this past year when he shared a car with "mon ami", which is what he called his friend and teammate, Peter Collins, he damaged the clutch at the start — a common failing of his — and the car soon was well behind the leaders after a long pit stop. The weather was wet and miserable, too. "I cahn't se-ee-eel!", Mike complained after his first stint (he even stopped a lap too early) pulling his mouth down in that wide grimace that makes him look like a fish going after a particularly well-baited hook.

Mike likes his comforts. Eschewing the limited facilities set up at the circuit, Mike dashed back to the hotel in town for a bath and a bit of rest when Peter took over the car for the second time. When he returned, fresh and little-boy looking, he exclaimed in mock horror to Louise: "You mean to tell me Peter is still going around out there

in this RAIN! The idiot!". At that moment, Peter returned to the pits having deserted the now completely clutchless Ferrari on the circuit. "Well, mon ami, that's more like it". They congratulated each other on relieving themselves of a wet and seemingly interminable task in time to get back to England by morning and off they went.

Their apparent delight at having "broken" a car did not sit well with the powers of Maranello when it was reported back to the Ferrari factory. The "fair-haired" Englishmen were not so fair of hair for a while. But the hand-shaking scene in the pits was misunderstood. It is ridiculous to think that the pair had conspired to damage the car and leave the race early. Both Hawthorn and Collins liked to win and liked to win very much. But neither were of the "press-on-regardless" school. Not like their teammate, Phil Hill, who last season changed tires and literally moved a mountain (at the Targa Florio) just to finish. If winning — or at least doing very well — is out of the question, that mystic something in Mike that puts him "on" seems to snap "off".

But getting back to Portago and his run-down on Mike — he was right. Mike is hard to classify. Both in a car and out. Central Casting would never send him on a call for a racing driver. His flaxen hair and pink, choir-boy cheeks, would obviously be inappropriate. And then the technical director would throw him back as "too big" for a racing driver. Mike himself has found his six-foot-two length a problem when it comes to telescoping it into racing cars. His early cars were particularly small for him and he attributes his present hunched-over, scroched-down driving position to efforts to turtle into them out of the windstream.

There are many characteristics that are quickly identifiable — that are "strictly Hawthorn": sketch a bow tie as a starter, then a blue helmet with a plastic rain visor (worn in the wet and dry) and you have sketched Mike. Put a four-spoke steering wheel in a racing car, and build in a minuscule amount of understeer, and it probably belongs to Mike. Take pictures of a driver in action whose mouth is constantly drawn and distorted as if in torture (the fish-after-bait look) and you have photographed Mike.

Off the course, change the Kelly-green battle jacket for a heavy tweed, slant-pocketed sports coat, change the dark-blue helmet for a chewing-gum-colored corduroy cap bent until it's peaked like a rooftop (leave the bow tie) and set the figure talking to a crowd of ever-present, ever-admiring — and admirable — females, and that's undoubtedly Mike. Sprawl an apparently disinterested driver behind the pits reading the ubiquitous Western paperback while our front mechanics and team manager fly into dithers over his ailing machine, and that is sometimes Mike. Fill a room with a laugh that starts from the floor, free and loud, then breaks a wide face even wider and makes others turn from their conversations to smile, and that is Mike. Watch a man with a strong face grown grave and distant, holding in his hands the crushed helmet of a friend who is about to die, and that, too, is Mike.

Mike is a unique and interesting person,



Hawthorn reports on Monza GP practice to Enzo Ferrari.



Wheeling a Dino through Monza's South Curve, Mike grimaces—as usual. At rest too, his mouth is seldom closed.



as changeable as the fortunes of a race, and sometimes a little zany. After Sebring last year — his car had retired — he had a head start on celebrating the victory of "Uncle Phil" and "mon ami mate". ("He never takes care of himself", Portago had said, and it is true, he seldom tries.)

Anyway Mike decided to take a bath in the Collins' motel. Which was perfectly all right except that he chose to do it fully dressed, shoes and all. There he was, singing lustily in the tub as he gaily lathered his clothes.

Mike is sometimes a captive of his own sense of humor. At the 1000 Kilometers at the Nürburgring last season, Mike jumped the gun on the Le Mans start and was half-way across the road before the count-down was finished. From behind him came the irate scream of his friend, and long-recognized King of the Le Mans Start, Stirling Moss: "You b..... Hawthorn!!" It was too much for Mike. As if socked in the stomach, he doubled with laughter right in the middle of the track. Moss, everyone, dashed past him. In tears from the laughing he was almost too weak to start his car once he reached it.

There have been many "firsts" in the life of John Michael Hawthorn starting that tenth day in April, 1929, when he first saw light of day. His father, Leslie, was a garage owner and a man active in motor-cycling and motor-racing circles, putting

Mike close to this world from the time he was a tyke.

His first time at the wheel of a car was when he was eight. He "borrowed" an old Jowett that had been left for repair and, with it in gear and the engine off, ground it around a field behind the garage on the starter motor.

His first vehicle was a 1927 Norton motor-bike which he owned when he was 14, but for tinkering purposes only as he was too young to drive on the road.

His first brand-new machine was a 1947 350 c.c. Competition B.S.A. and it was with this that he made his entry into motor racing. In his first event he won his first award, the Novice Cup.

His first competition car was an 1100 c.c. ex-factory Riley Ulster Imp. His first competition with it was the 1950 Brighton Speed Trials and he won his class.

His first season in a single seater was 1952 when a friend of his father's bought a two-liter Cooper-Bristol for him to run.

His first Grand Prix was the same year, it was the G.P. of Belgium at Spa and he was fourth in the Cooper-Bristol. His first crash was at Modena in his Cooper when he went there to drive a Ferrari, his first trial for that Scuderia. He was not seriously injured and neither was the impression he had made on the Ferrari folks because at the end of 1952 he became the first English driver since Dick Seaman to sign

with a continental racing team.

When Ferrari signed him, Mike was just 23-years-old. He was a mere two years beyond his first "go" at Brighton. And he was six years before his championship at Morocco. There was to be a fabulous first season just one step ahead. And then there was a long row to hoe through four up-and-down years that saw several crashes and severe burns; a kidney operation; the death of his father, to whom he was extremely close, in a road accident; the death of a very close friend in another accident; the grim tragedy at Le Mans in which he was the first link in a chain reaction; and the frustrations of driving G.P. cars (Vanwall and B.R.M.) which were still in the early stages of development and, although capable of leading, seldom capable of finishing.

Mike's first year with Ferrari, 1953, was probably one of the most successful rookie years ever. In his first three races for the prancing horse he finished fourth, third and second. Then came the Grand Prix of France which was the high point of the season — and perhaps of Mike's entire career. Certainly it was one of the most exciting Grands Prix ever and in Rheims they still suck in their breath when it is mentioned.

At the mid-way mark of the race, there were still seven cars running under a blanket. And look at the fast company this

young Englishman was keeping: The order ran Fangio, Hawthorn, Ascari, Farina, Villoresi, Bonnetto, Gonzales. Gonzales had been leading until he stopped for fuel. Then the lead proceeded to be passed back and forth between Hawthorn and Fangio like a black jack deal. A report at the time said the lead changed no less than twelve times.

There wasn't a single grandstand seat being sat in and the pits were an unbusinesslike frenzy of excitement. "We would go screaming down the straight, side by side absolutely flat out, grinning at each other, with me crouching down in the cockpit, trying to save every ounce of wind resistance", is the way Hawthorn describes it in his book, *Challenge Me the Race*. "We were only inches apart. I could clearly see the rev counter in Fangio's cockpit".

Dicing with Fangio is one thing. Crossing the finish line ahead of him quite another. Mike knew that if he left the hairpin turn onto the pit straight just ahead of Fangio, Fangio would slipstream him and then nip past just under the flag. He knew, too, that Fangio was too wary an operator to let a "new boy" slipstream him. Hawthorn found the extra impetus he needed out of the final turn by slipping down into first gear and literally blasting his way out of the turn. He raced Fangio across the line by a second. And Gonzales finished only a few feet behind Fangio and Ascari some three seconds behind him. *The Autocar* reported: "It was a battle which exhausted even the spectators with its intensity and duration".

Hawthorn's second year with Ferrari was much different. Early in the season he was painfully burned in a crash with Gonzales at Syracuse. Then the news of his father's accident reached him at Le Mans. And when he returned home to England for the funeral he found himself the center of a brouhaha over whether or not he had been dodging his military service. (He had at one time been deferred as an engineering student.)

Press, public, and even Parliament took up the matter. Mike has never been one to explain himself nor go out of his way to smooth ruffled public relations. He did not then. And the storm raged. As it turned out, he would have been deferred on physical grounds, if not because of his burns then because of his kidney condition. He was to go into the hospital for surgery for that soon, but not before he went to Barcelona and won the Grand Prix. That, and the Supercortemaggiore, a sports car race, were his only victories for the year.

In 1955 Mike and Ferrari parted company, not too amicably because no one parts amicably with Ferrari. The Comendatore is a strong man. The disagreement was over Mike's wanting to race for a home team, Jaguar, in the limited program they had scheduled and drive Ferrari in the Formula 1 races. Ferrari did not wish to share him, so Mike chose Jaguar.

He won Sebring with Phil Walters in Briggs Cunningham's D-Jaguar, but it was not an unclouded victory. The laurel wreaths and the congratulations first went to Phil Hill and Carroll Shelby who shared a Ferrari, then a re-check of lap charts gave Jaguar the victory.

But the Le Mans victory with Ivor Bueb was even more clouded. That was the year that Pierre Levegh's Mercedes Benz hit the wall across from the pits and sliced through the crowd cutting a swath of fire and death. The Mercedes had dodged an Austin Healey, and the Austin Healey had spun in dodging Hawthorn's Jaguar as Mike cut sharply to stop at the pits which lined the all-too-narrow road way. There was no room for dodging.

Some eighty people died in that disaster. Hawthorn was quickly cleared of any responsibility for the crash in the investigations that followed, but the press — particularly the German press — did not let the matter drop. Perhaps in the effort to disprove accusations that the car's magnesium body burned with abnormal intensity and to disprove the wild rumor that the car had carried a secret, highly volatile fuel, the German papers over-emphasized Hawthorn's part in the chain of events that ended in the Le Mans tragedy. Since then, anyway, Hawthorn has at best been a controversial figure in Germany and even today some German writers attack him fervently with personal animosity.

Hawthorn's popularity in Germany was not enhanced any by his being black-flagged for passing "dangerously" and bumping a Porsche in the tail during the 1000 Kilometer race at the Nürburgring two years ago. The next chapter of this anti-Hawthorn book came when he was refused an entry in the G.P. of Germany in 1956. The insurance companies refused

to cover him, it was said. This caused a grand old ruckus in the motoring world and many letters-to-editors in many languages. But since then, as Richard von Frankenberg, the noted German journalist and driver has said: "The waves have calmed".

On top of everything else, 1955 was Hawthorn's darkest as far as Grand Prix racing was concerned. He collected not a point toward the championship. He was driving for Tony Vandervell and the Vanwalls were not completely through their birth pangs. Vanwall, like Mike, still had three full years to go to its world championship.

The next season, 1956, Hawthorn did not do much better, earning only four points. It was another year of experimentation and development for Vanwall — and for B.R.M. He had three incidents with the latter which could have been very serious. One time the hood flew off during a test and dealt Mike a terrific blow on the head. Had it struck at a slightly different angle, he would have been decapitated. He also rolled a Lotus this unhappy year. He partly made up for the frustrations on the circuits by taking to the air and he earned a pilot's license. He flies to many of the races now, piloting his own plane.

Back home again with Ferrari in 1957, Mike fared much better finishing fourth in the championship, but by no means coming near his 1953 season. Ferrari was in transition from the last legs of the Lancia-Ferraris to the fantastic new Dino Ferrari which was still many months off.

(Continued on page 53)

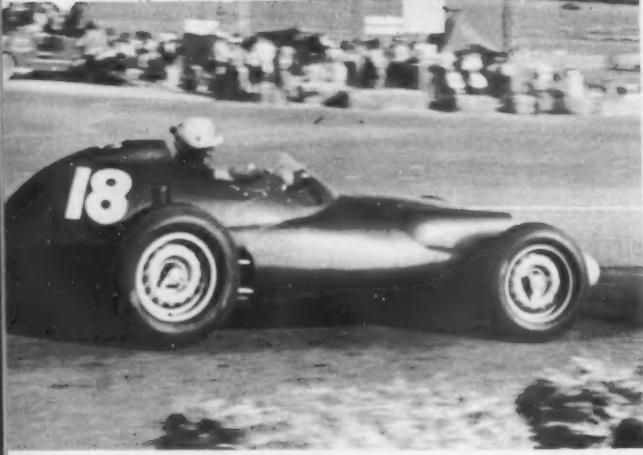


Photos by Edward Eves



FRANTIC FINALE

by Jesse Alexander



Above: Joakim Bonnier, the fast Swedish bearded, decided to go, and led the B.R.M. team, finishing fourth. Below: Vanwall's weight-saving front wheels are bolt-ons by Dunlop. Dig the crazy hubcaps.



AIN DIAB, MOROCCO. October 18, 1958. This is to be the final Grand Prix of the year and in addition to the driver's race for world championship which had its climax here in Morocco, there are several interesting mechanical innovations on the Formula 1 cars.

First, Ferrari; two cars came to Casablanca fitted with disc brakes — a set of Girlings with special dished hubs were installed on one. Another Dino has the Dunlops that first appeared at Monza in September. It's obvious that Enzo Ferrari is using the coil spring machine as a dynamic test-bed for 1959, trying both Girling and Dunlop discs. It's quite probable that the 1959 Ferrari Dinos will all have coil springs and disc brakes. The Dino 256 engine was left in Maranello. Phil Hill has been given the older drum-brake Dino and seemed pleased enough with his best practice time of 2'24.1. As you can see by the following list he had every reason to. Saturday's ten best practice times:

Hawthorn	Ferrari	2'23.1"
Moss	Vanwall	2'23.2"
Lewis-Evans	Vanwall	2'23.7"
Behra	BRM	2'23.8"
Phil Hill	Ferrari	2'24.1"
Gendebien	Ferrari	2'24.2"
Brooks	Vanwall	2'24.4"
Bonnier	BRM	2'24.9"
Trintignant	Cooper	2'26.0"
Fairman	Cooper	2'27.0"

Masten Gregory, driving the Buell Maserati, was able to turn only a 2'27.6" — the car quite obviously was down on power in comparison to the others, as Gregory was trying very hard in Saturday's practice session. The car has been fitted with a "nostril-type" nose, supposedly to aid the cooling, but mostly for "effect." The Koni shock absorbers have been replaced by Houdailles at the front though the Dutch shocks remain at the back.

BRMs are *not* to be underestimated, and though this is written before the race, Behra has shown the car and himself to be an extremely potent combination on the Ain Diab circuit. Behra surprised everyone when he was fastest on Friday's practice and fourth fastest on Saturday. It's a pleasant surprise to see Behra obviously happy with the car and himself. The BRMs have a shorter tail piece and the



Phil Hill during his fourth brilliant drive of the season.



Left: Hawthorn and Hill, Ferrari's mutual admiration society.
Below: Scuderia Buell's answer to the '59 Pontiac . . . Gregory up.

centrally-mounted rear disc is exposed to the breeze on its underquarter side. One of the cars is fitted with a water header tank mounted at the back of the engine.

In the Vanwall stable there has been tremendous activity in the few weeks separating the Italian and Moroccan GPs. On the Moss car, great effort has gone into weight-saving. Some 50 pounds have been removed since Monza. A good part of this is in the front wheels which are of a new spoked type, not center-lock but bolt-on, made by Dunlop. Vandervell has spared no effort to assist Moss in his final effort to win the 1958 world championship. Moss blew up his Vanwall in Saturday's practice and immediately took over Brook's car—he then went out and did his 2'23.2" lap—so it's obvious that not all the cars are of equal potency.

Coopers are here in force, hoping to win not only the F2 event but the F1 as well. Fastest and bravest Cooper driver is Maurice Trintignant, who turned 2'26.0".

But naturally the entire day centers around who will win the 1958 driver's championship—Moss must not only win the race tomorrow and make the fastest lap, but Hawthorn must *not* finish second. Mike, on the other hand, can go out to win but does not have to bust his gut to stay in front. He can quite simply follow Moss, stay just on his tail, and let Stirling blast off with the lead, providing his Ferrari doesn't break.

October 19, 1958. Today on Casablanca's Ain Diab five mile circuit, Mike Hawthorn became 1958 world champion through a concerted Ferrari effort to stop Stirling Moss. Stirling did everything he could. He won the race and had the fastest lap, but Mike Hawthorn finished second, winning enough extra points to keep ahead of Moss.

All Mike had to do was finish better than third. He probably could not have done the job without an assist from Phil Hill. He and Moss scrapped from the very beginning, steadily pulling away from Hawthorn who was deliberately taking it easy, not over-stressing things. Phil deserves every credit, for he made a brilliant start and shot after Moss in a pre-arranged plan to try to blow up the green Vanwall.

The first two laps, Hill and Moss were swapping the lead down the main straight with Phil making a maximum effort to stay in front of the green car. He could on the straight, but the drum brakes on Phil's Ferrari just did not give equal

(Continued on page 59)

Gendebien leads Behra during the early stages. On lap 26 Behra suddenly retired, and a few laps later Gendebien spun into Bridger's F II Cooper.





High style and a "boulevard look" hide some pleasant surprises. Underneath that long tail section is enough room for a week's worth of luggage for two.

SCI ROAD TEST:

SURPRISING IS THE WORD for Fiat's new 1200 TV roadster (or convertible if you want to be a purist about it). Or perhaps "fascinating" would be a better word. The 1200 is one of those rare cars that you like better and appreciate more as each minute goes by.

At first glance it looks to be no more nor less than a pretty little convertible of the sort in which a fond father might send a favorite daughter to college — a car one doesn't have to worry about, something docile, cute but not exciting.

But first glances seldom tell the whole story — especially in the case of the Fiat 1200 TV roadster. The minute one gets into the car the first-glance impression begins to fade. The engine fires up at a twist of the key to a busy idle somewhere in the neighborhood of 900 rpm. A nudge at the throttle bounces it up with an exuberance that betokens plenty of breathing and a cam that has been ground to match. The exuberance is not belied by the initial

performance either; the car gets under way almost instantaneously without squatting or lugging, then runs up so quickly through the gears that the speedometer must be watched carefully to avoid running afoul of the man in the blue suit. In traffic the car can be darted in and out in a way that must seem miraculous to a man in something less lively and agile. Running up and down through the gears is sheer pleasure, the stick moving positively from gate to gate as easily as a toothpick in a butter pat. Low gear is not synchromesh but even a sloppy job of double-clutching gets you into Low at any speed up to about 15 mph.

Swift and agile though the car is in traffic, it is out on country roads that the 1200 TV comes into its own. Seemingly high and a bit too narrow to the discerning eye, at least from a technical point of view, the Fiat hands out another surprise in the form of handling characteristics that do its country of origin credit indeed. One



Coming around a tight bend flat out in third gear, there's nary a trace of lean or slide discernible to the eye and only a modicum of tire noise.



*One of those rare cars
that you appreciate more
as each minute goes by...*

Here's more good, solid engineering lurking under that pretty tinware. Independently suspended by wishbones and coil springs, front end rides rock solid on heavy shocks, stiff swaybar.

FIAT 1200 TV Roadster

expects an Italian car to handle well (they have to handle; an Italian on his native heath has his right foot bolted firmly to the firewall at all times) but the Fiat's form of handling is on a high order indeed. On corners through which some truly *pur sang* automobiles drift and slide, the 1200 TV just motors through with barely a protest from the tires. It gets a bit eerie at times and frustrating as well. We took one of the turns on SCI's test circuit and bored through at what seemed to be an optimum speed for the car. It just marched through with as much aplomb as if it were being putted around a city park. Back we went some five miles an hour quicker. The same thing happened — not even a chirp from the rubber. Things like this tend to be frustrating — small, inexpensive convertibles aren't really supposed to hang onto the *pavé* like small expensive imports.

This particular machine had come to us through the kind offices of Mr. Franklin D. Roosevelt Jr. and it was earmarked as

his personal automobile. Regardless of the fact that there are no longer any Roosevelt connections in the White House, it just didn't seem quite diplomatic to take chances with Mr. Roosevelt's personal transportation. Still, there was that corner and the car was just too blasted impeccable. It was just too much. We took a full lap to wind up and went into the corner at as close to full bore as conscience and good sense dictated. Although, as the photos indicate, we got some semblance of drift this time the feeling in the cockpit was that of going around on the end of a string, one or more natural laws seeming to have been vetoed for the benefit of Fiat. Later, the Editor and Technical Editor took turns going for lap times, a procedure not normally followed when testing touring automobiles and anything not specifically sold as racing or semi-racing equipment. In full touring trim, with everything aboard, we were able without undue hurry to clock a steady 1 minute, 30 seconds. Not

once during this period did the car feel extended either as to engine speed or road adhesion. This is not to recommend that Fiat 1200 owners do the same thing. First, we were on a race course noted for smoothness, not a public road, and secondly, this is a touring sports car, not a racing car even though it behaves very much like one. What we proved to our satisfaction, and we hope to prospective and present Fiat owners, is that the 1200 TV is as safe as houses even under violently abnormal circumstances that it was not really intended to meet.

Safety and lively performance are not the only attributes of the 1200 TV either. Luxury is perhaps its most striking facet and one most immediately apparent. The interior appointments are distinctly reminiscent of several convertibles costing twice as much and would do credit to the likes of Ferrari and Maserati. It isn't all mere trim either — there is a solidity to the car, an impression of all-of-a-oneness that

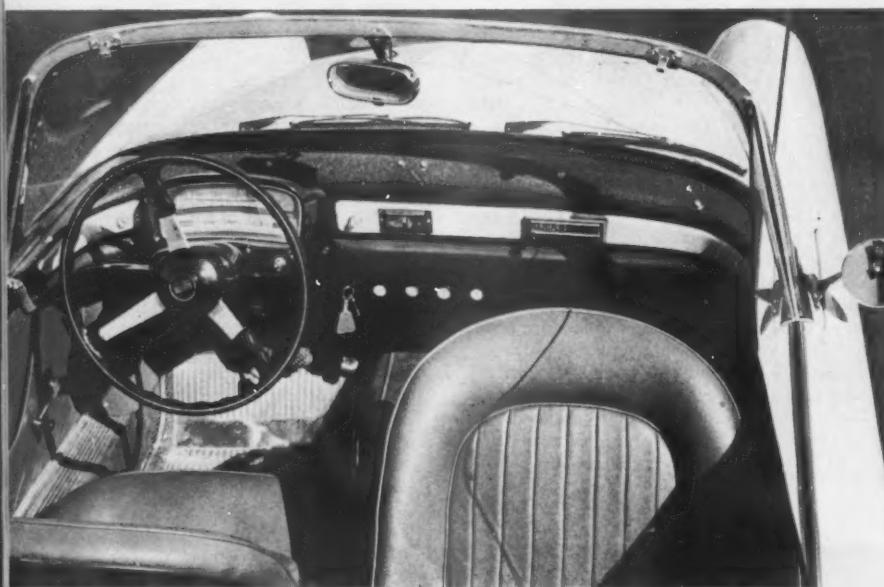
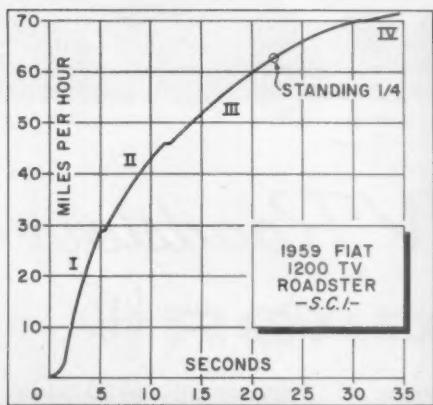


Going into a long bend in top gear the car seems to cling to its line as though tied to the end of a string or as though a natural law were vetoed.



Tame-looking 1221 cc rockerbox four with its single carburetor belies its appearance. Intelligent porting and a warm cam combine to let the engine belt out 60 SAE horses.

One of the luxurious touches on the 1200 TV Roadster is a top that folds or raises at a flip of one hand. Counterbalancing is absolutely correct.



Appointments within are neat and bear a feeling of luxury almost out of keeping with the price of the car. Both seats swivel outward and the passenger's seat will turn all the way around and lock facing backwards!

comes only with good, solid basic design. There is no feeling that knobs and other small controls will come off in your hand. The metal-spoked dished steering wheel is firm and comfortable and the gear lever has that firm, rock-solid feel associated with the gear changes of the more expensive Italian imports.

In all this welter of good workmanship and design there was one thing that was outstanding — the top. Raising or lowering the lid was a one-hand operation even while under way. Perfectly counterbalanced, yet light and simple, this is a top that other manufacturers would do well to look at long and seriously. Except for the tops on two specific German cars there is no easier roof to operate in the world — including push-button units. Another point worthy of mention is the swivel seats. The Chrysler Corporation introduced their turn-table seats with much fanfare early in the Fall — Fiat just installed theirs and let it go at that, neglecting to mention even that the seat on the passenger's side swivels completely around and locks into place facing backward!

FIAT 1200 TV SPIDER

Suggested Retail List Price at
 East Coast \$2654
 U.S. Importer: Hoffman
 443 Park Ave.
 New York 21, N. Y.
 nr.
 9130 Wilshire Blvd.
 Beverly Hills, Calif.

PERFORMANCE

TOP SPEED:
 Estimated 85-90 mph

ACCELERATION:

	seconds
30 mph	5.7
40 mph	8.9
50 mph	14.2
60 mph	20.4
70 mph	31.4
Standing 1/4 mile	22.3
Speed at end of quarter	65 mph

SPEED RANGES IN GEARS:

I	0-29
II	8-46
III	12-70
IV	16-top

SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed	Indicated Speed	Timed Speed
30	26	60	54
40	36	70	63
50	44		

FUEL CONSUMPTION:

Hard driving	25 mpg
Average driving (Under 60 mph)	30 mpg

SPECIFICATIONS

POWER UNIT:

Type	Four cylinder, water cooled, in-line
Valve Operation	Pushrod overhead valves, in-line
Bore & Stroke	2.83 x 2.95 in (72 x 75 mm)
Stroke/Bore Ratio	1.04/1
Displacement	74.5 cu. in. (1221 cc)
Compression Ratio	8.0/1
Carburetion by	One Weber 36 D1M 7 dual-choke downdraft
Max. Power	55 CUNA (60 SAE) bhp @ 5300 rpm
Max. Torque	60 lbs.-ft. @ 3000 rpm

DRIVE TRAIN:

Transmission ratios	
I	3.38
II	2.09
III	1.38
IV	1.00
Final drive ratio	4.30
Axle torque taken by rear springs	

CHASSIS:

Frame	Integrally constructed with body
Wheelbase	92 in.
Tread, front and rear	48 1/2, 47 1/2 in.
Front Suspension	Coil springs, wishbones, anti-roll bar
Rear Suspension	Rigid axis, semi-elliptic leaf springs, anti-roll bar
Shock absorbers	Telescopic
Steering type	Worm and roller
Steering wheel turns L to L	3
Turn diameter, curb to curb	34 1/2 ft.
Brakes	Single leading shoe, front and rear
Brake lining area	153 sq. in.
Tire size	5.20 x 14
Rim size	3 1/2 J x 14

GENERAL

Length	154 in.
Width	57 1/2 in.
Height	50 1/2 in.
Weight, as tested	2320 lbs.
Weight distribution, F/R as tested	55/45
Fuel capacity	10 U.S. gallons

RATING FACTORS:

Specific Power Output (SAE)	0.81 bhp/cu. in.
Power to Weight Ratio (SAE)	38.6 lbs./hp.
Piston speed @ 60 mph	1840 ft./min.
Braking Area	132 sq. in./ton

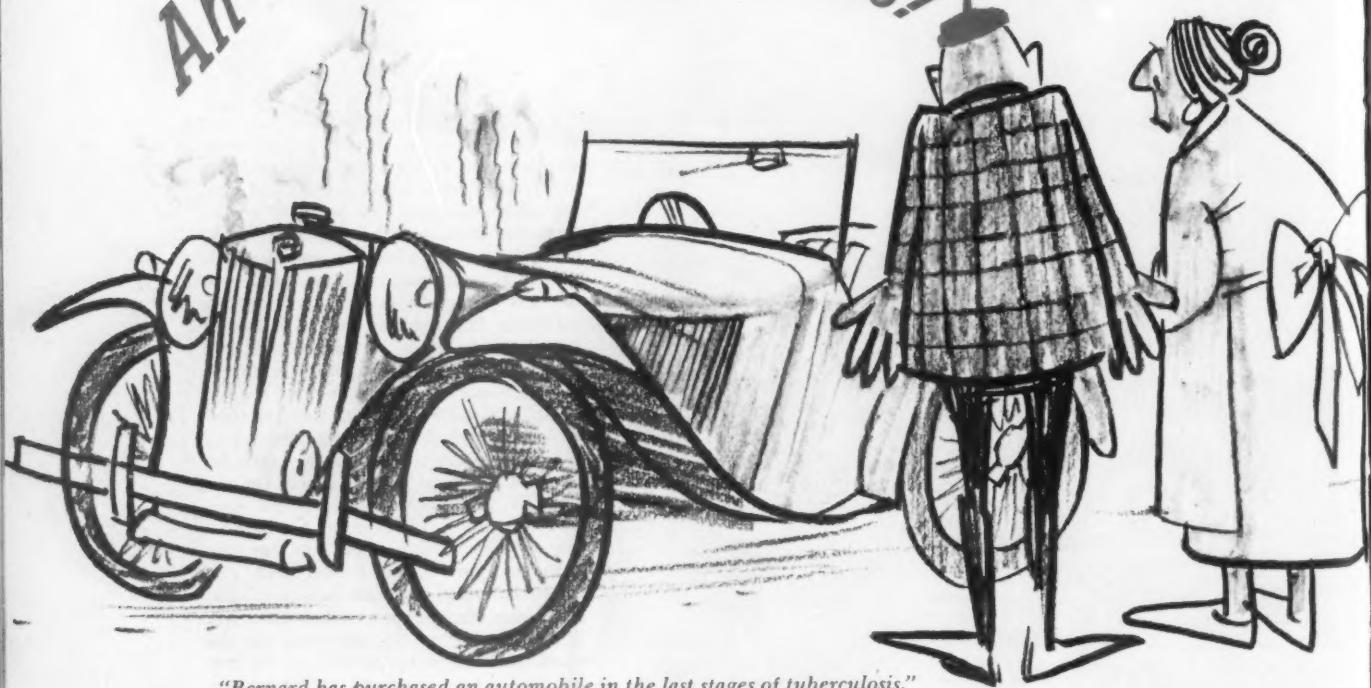
Speed @ 100 rpm in top gear 16.1 mph

Under the hood lurks the ubiquitous 1221 cc four-banger. That it has the same displacement as the small Simcas is no mere coincidence; both are developed from the 1100cc designed eons ago by Fiat, the same one worked on by such stalwarts as Gordini, Abarth, Cisitalia, and Stanguellini. In Italy it bears the same relation to the less pecuniuous brethren of sporting fraternity that the Chevrolet V-8 does in America. Similarly, it's dead reliable and is successfully subjected to much tuning by all and sundry. The less potent 1100 has a four mm smaller bore and a compression ratio one step lower (seven instead of eight) and only a single throat carb instead of the dual choke Weber. On the 1200 TV, this Weber breathes into a four-port manifold (aluminum but water-heated for quick warm-ups) and then into individual ports in the cylinder head. The latter, carrying overhead valves, is also aluminum. In horsepower, the difference is between 43 hp at 4800 rpm for the small one and 55 hp at 5300 hp for our test car. These are both CUNA ratings which are stricter than SAE. By the latter standard, the 1200 rates 60 bhp. By either, it's a healthy little engine, but definitely not horse enough to make a raceable proposition out of this fine handling roadster. Which is too bad.

During the 1,000 or so miles we were permitted to drive the car only two minus factors showed up, made more apparent than they would normally have been by the excellent overall quality of the car. First was a speedometer that was extremely optimistic at all speeds and the second was extreme tire-pressure sensitivity. Raising the pressure of the rear tires a pound or two over the threshold of 25 psi produced severe tail-hop on anything but the smoothest pavement. Pressures below this point smoothed everything out to produce that "painted on the road" feeling mentioned earlier. Other than these two minor factors nothing else could be found to complain about.

All in all, the Fiat 1200 TV Roadster is a safe car, a lively car, a luxurious car and most important of all, a *fun* car that can be taken just about anywhere with a week's worth of luggage for two stowed completely out of the way. We sincerely doubt that Mr. Roosevelt will have any difficulty in selling all that he can get the Fiat folks to produce. *jpc*

Ah Well, the Americans!



"Bernard has purchased an automobile in the last stages of tuberculosis."

EH! WHAT IS THAT strange motion you make with your left foot — push-push, so! — when you are moving the transmission lever, mon petit fil?"

"That is the double-declutch, mon Papa. You taught me."

In wonderment, my Papa murmured, "I did?"

"Of course," answered I. "It was you who taught me to drive, with the double-declutch also."

"It is as you say, Bernard," said Papa firmly, with a glance through the windshield to reassure himself that we were indeed still upon the road.

After a few moments silence, "Perhaps you would be so kind as to demonstrate the movement to me — at some suitable occasion, when we are not traversing a bend at such high speed? Just to refresh my memory, you understand?"

Grasping the wheel in the approved mode for the fast circuit of corners, courteously I replied to my beloved father, "Oui, of course, Papa."

I had that very day purchased an English automobile of sporting nature, called an MG TC and had persuaded my father to accompany me upon a short drive in the rain, in order that I might demonstrate its character to him.

Every time I endeavored to overtake another car, he very courteously enquired of me, "Can you see that Renault approaching toward us from your side of the auto?"

Hastening to reassure him concerning the safety of an automobile with the steering wheel on the right hand side — "the

wrong side," Papa insisted on calling it — I said, "I can see other autos at almost the same moment that you can, Papa, for this carriage is of such fortuitous narrowness that we are almost seated in the same seat. Also, the smallest turning of the wheel produces such large movement at the front wheels that it enables me to move out to the centre of the road very quickly and return equally quickly, should another automobile be occupying the route directly ahead and advancing toward us." Saying this, I demonstrated it to him.

When we were again upon our portion of the road, Papa muttered, "It is indeed fortunate, Bernard, that the TC is of such quick steering, for, if it was not so, that imbecile of a driver would have squashed us flat as a pancake, n'est ce pas?"

When we had turned around and were ready to return home, where Mama was awaiting us for supper, Papa requested permission to drive. With much misgiving, but allowing my filial devotion to overcome this misgiving, I allowed him to assume command. The rain was considerable and the road of much slipperiness, but, after all, he was my father, n'est ce pas?

After much noise from the transmission, caused by Papa mistaking 1st gear for 3rd — "Bernard, are you certain the English have not reversed the positions out of spite, revenging themselves upon us for the Vichy Government?" — we had soon attained a respectable velocity.

With great elan and, unfortunately, little style, Papa attacked numerous serpentines. Having finished these, he shouted to me over the buzzing of the motor, "It is fortunate that le bon Dieu has blessed you

by Roger A. Proulx

Illustrations by Bob Weber

"It is always wise to test the suspension."





"Observe the free motion of this steering device."

with muscles of great strength, Bernard, for, indeed, to persuade this minute automobile to change its direction one needs the force required to drive a very large camion."

He then pointed the slender snout of my cheerful chariot down a road strewn with very many bumps and holes, giving this advice, "It is always wise to test the suspension, my son, in order to determine . . ." At this point he fastened his grip and said no more until the auto was again upon a smoothly paved route again.

"Bernard, I regret to tell you that this petite bolide is in reality not an automobile, but a small coal-cart, very cleverly disguised!"

A little later, "Intriguing! The makers of this diminutive coal-cart have made provision for the rounding of bumpy corners, without the necessity of moving the steering wheel. Observe!"

Having said this, Papa allowed the TC to glance one front wheel on the side of an oh-so-small bump and, immediately, the bonnet shook, moved and voila! the water-filling cap was pointing in an entirely new direction.

This information I stored in my memory, meanwhile noting that the manouevre could happen at an inadvertent moment and cause one to create a large commotion upon the wrong side of the road.

"Also observe, mon cher Bernard," said Papa, "the free motion of this steering device." so saying, he turned the steering wheel through many degrees without causing any deviation from the course of the auto.

"That, Papa, is what the man who sold it to me called 'an inherent feature' of a TC MG and can be found on any TC, if one should look."

"Do not take the trouble to look" shot back Papa. "Take my word, it is not natural." It was possible to detect a small sigh of relief from him, when we arrived safely at our front door.

Papa was able to contain himself until dessert. Then, after much clearing of the throat, he delivered himself of the thoughts upon which he had pondered throughout supper, no doubt. "Cecile," — it was the name of my Maman — "Cecile, our son has not, I am sorry to state, inherited my sense of the value of money."

Taking a small sip of coffee, he continued, "I have not the slightest doubt but that many more ships in our convoy would have escaped the filthy U-boats, if they could have only emulated the zig-zag pattern that Bernard's auto adopts, even on a perfectly level road."

A look through the window was of reassurance to me that my TC impatiently waited. The covering of its skin by a multitude of raindrops caused it to glisten like a jewel. Sigh!

"By the by, Cecile," resumed Papa, "It will not be a necessity to draw a bath for me this evening."

"Why, Emile?" asked Maman.

Scathingly, Papa replied, "Because I have already bathed in Bernard's little auto. So much rain entered through so many places that I was forced to wipe my spectacles five times."

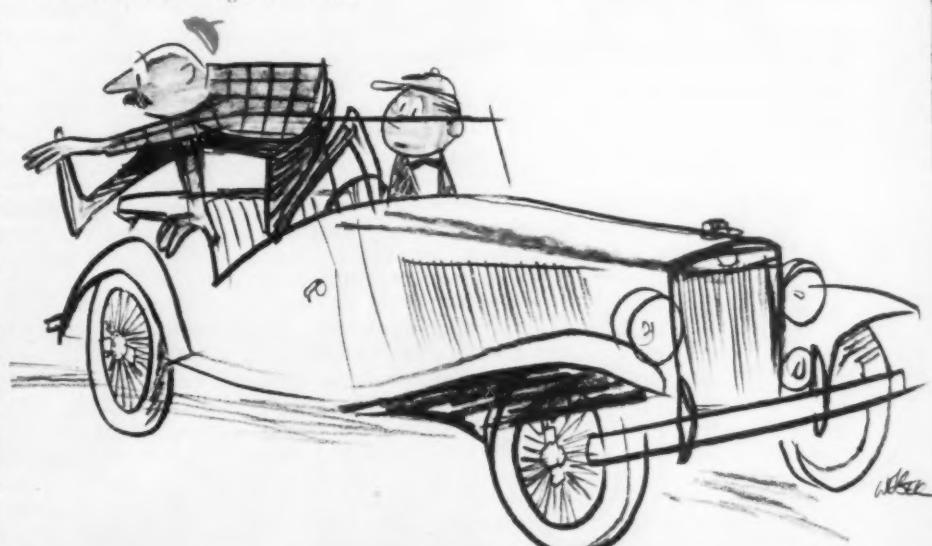
Maman giggled. Then attempted to soothe him. "Emile, it is his money and his auto. From his labor came the sufficiency of francs to do so."

"You do not understand, Cecile," he snorted. "The beast is not safe! For instance, every time the road slopes sharply away from the crown, Bernard's projectile attempts to attack the cows of Farmer Godet, peacefully grazing in the fields!"

Thundering on, Papa roared, "Tell me, in the name of heaven, what possessed you to pay such a fantastic sum of money for an automobile of such un-streamlined aspect, such rigid suspension that a pencil laid on the road could cause breakage of the spine, such flimsy appearance, with steering of such jerkiness and stubbornness, with a chassis that seems to twist like the American pretzel and a roof that flaps the edges in the breeze like a bird, allowing great deluges of water and air to enter?"

"Well, Papa," I answered to him, on my way to the door, "I have read in an American sporting magazine, that the MG TC is now considered to be a classic in the U.S. of A., sometimes selling for more than its original cost price."

"Ah, well, the Americans!"



"It was possible to detect a small sigh of relief from him."



CHEV 315

STEVE WILDER'S VIVID TEST REPORT on the 4.9 Ferrari Superfast in SCI's September issue drew lots of mail. What much of it had to say is typified by reader C. S. Earnshaw's comment: "... being able to drop a sports car into low at 45 mph could be duplicated in an American product (Corvette) at much lower cost. In fact, you could buy a 300SL roadster with the difference."

We even had a number of phone calls in response to the 4.9 report. One came from long-standing reader Ron Steiner of Beverly Hills. "Look," he said. "That Ferrari is lots car . . . for lots money. I'd like to show you something I got recently for \$2600. I warn you: you're in for a real shock. It's a stock Chev but it's downright fantastic."

The more we heard the more intrigued we became. About four months previously Chevrolet had introduced its "315" power package. This consists of a 348 cu. in. engine, Dunlop cam, solid tappets, a trio of dual-throat carbs, heavy-duty clutch and Corvette close-ratio three-speed transmission. Cost of the 315 combination in Los Angeles is \$229 over the standard engine and transmission assembly. The hot package is available in any Chev body style, including station wagon, and this availability will continue during the '59 model year. Delivery has been taking about four weeks and, at this writing, there are very few 315's in circulation. Steiner had ordered his, as you might expect, with the lightest body in the Chev line — the Del Ray two-door. This plainly added up to one of the hottest cars in America or in the world and we lost no time in accepting Steiner's offer to put his two-month old car through its paces. Remember, now, this is a stocker, exactly like your grandmother can buy across the counter in any Chev agency in the nation.

Steiner rolled up to our test headquarters in the desert, a very muscular rumble coming from his stock pipes. The blue-gray two-door appeared to be a perfectly innocuous business coupe; it even had a back seat. Its 1100 rpm idle smoothed out the cam's low-speed lop and a bystander might have attributed the fast tickover to a jammed automatic choke. The sole modification that had been made to the car was a set of plugged straight pipes that were totally concealed between the frame rails. "Shall we open them?" Steiner asked, licking his chops. In the interest of duplicating drag strip conditions, under which this car generally is opened up, we gave the nod. Also, we wanted to hear the music.

(Continued on page 60)

By Griff Borgeson

On a mile per hour per dollar basis you just can't beat this six-passenger missile.



PERFORMANCE

TOP SPEED:
Two-way average 107 mph

ACCELERATION:

From zero to	seconds
30 mph	2.5
40 mph	3.8
50 mph	5.6
60 mph	7.2
70 mph	8.8
80 mph	10.9
90 mph	13.6
100 mph	16.8
Standing $\frac{1}{4}$ mile	15.2
Speed at end of quarter	96 mph

SPEED RANGES IN GEARS:

I	0-43
II	0-72
III	5-top

SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed
30	28
40	38
50	47
60	57
70	67
80	77
90	87
100	96

FUEL CONSUMPTION:

Hard driving	6 to 9 mpg
Average driving (Under 60 mph)	10 to 13 mpg

SPECIFICATIONS

POWER UNIT:

Type	W-348 V-8, water cooled
Valve Operation	Pushrod ohv, solid tappets
Bore & Stroke	4.125 x 3.25 in. (105 x 82.8 mm)
Stroke/Bore Ratio	0.79/1
Displacement	348 cu. in. (5700 cc)
Compression Ratio	11.0/1
Carburetion by	Three Rochester dual-choke
Max. Power	315 (SAE) bhp @ 5600 rpm
Idle Speed	1100 rpm

DRIVE TRAIN:

Transmission ratios	optional ratios
I 2.31	(2.20)
II 1.31	(1.66)
III 1.00	(1.31)
IV —	(1.00)
Final drive ratio 4.11	(3.36, 3.50, 370, 4.56)

Axle torque taken by upper A-frame.

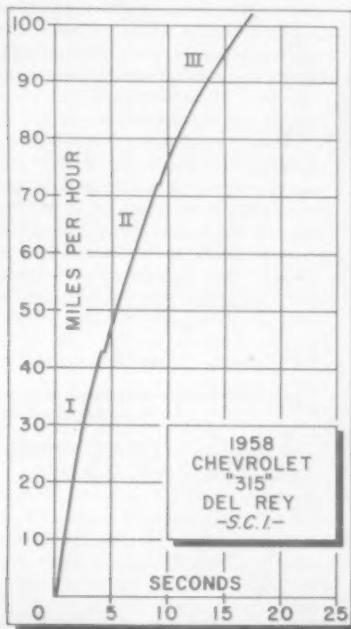
CHASSIS:

Wheelbase	117 $\frac{1}{2}$ in.
Tread, front and rear	59 in.
Front Suspension	Coil springs, wishbones, anti-roll bar
Rear Suspension	Rigid rear axle, coil springs Triangulated A-frame connecting to differential case.
Shock absorbers	Telescopic
Steering type	Semi-reversible recirculating ball
Steering wheel turns L to L	4 $\frac{1}{2}$
Brakes	Two leading shoe, organic linings std., inorganic optional
Brake lining area	157
Tire size	8.00 x 14
Weight, as tested	3920 lbs.

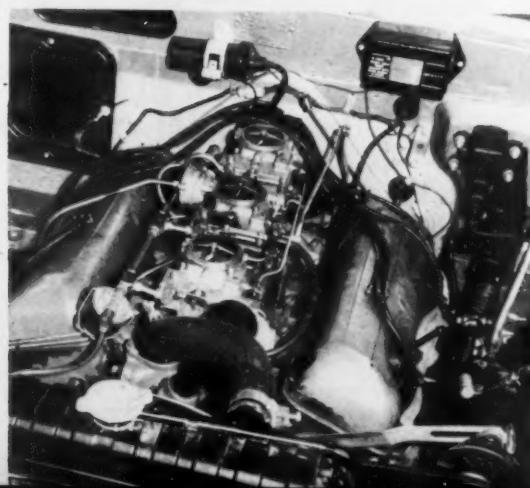
Weight distribution,
F/R as tested 56/44
Fuel capacity 18 U.S. gallons

RATING FACTORS:

Specific Power Output	0.91 bhp/cu. in.
Power to Weight Ratio	12.4 lbs./hp.
Platon speed @ 60 mph	1820 ft./min.
Braking Area	80 (1) sq. in./ton
Speed @ 1000 rpm in top gear	18.9 mph



Left, the looks may be last year's but the performance certainly isn't. Below, Good Griff, Charlie Borgeson, you compare this with a Ferrari?



348 cu in "Law Enforcement" engine features 10:1 CR, domed pistons with "eyebrow" cutouts for valve clearance, solid cam followers for the Duntov cam, plus three twin-choke Rochester carburetors.

TAKE a rolling meadow in June, throw in a thoroughly professional and ambitious promoter, and in mid-September you have a racing meet on one of the most dramatic circuits yet built—and one of the most disgraceful.

This is what happened to produce Meadowdale Raceways, the new 3.27-mile plant just west of Chicago. It also produced the bitterest aftermath in the young history of amateur sports car racing in this country.

Where there had been fields and forest there was, four months later, a stunning asphalt circuit with bridges, underpasses to the infield, utilities, permanent pits and room for 100,000 spectators. An astonishing feat of construction—but what meets the eye is not the whole story.

The circumstances surrounding Meadowdale Raceways make it, depending upon your point of view, one of the best or one of the worst things that has happened on the American racing scene. The same circumstances make Meadowdale impossible to dismiss. Very good reasons, chiefly financial, make it potentially the most important racing circuit in the country. And if you discover an "F", an "I" and an "A" lurking in this description, you are absolutely right.

Let's describe the physical layout and then deal with the mess of the first meet. The circuit winds and climbs around 232 acres of farmland in the Fox River Valley 40 miles west of downtown Chicago, three miles from a new toll road. The road bed is 32 feet wide at its narrowest, better than most courses. There are seven right and five left turns. The most publicized and most misrepresented is the so-called "Monza wall," a high, artificial banking of 45 degrees that takes cars from a due south heading to due north. At present, it is, in the words of the drivers, "rougher than railroad ties," and a Lotus, for example, bottoms at several points. For this reason and others, it is not a really fast turn. At the inaugural meet all the big cars, including the Scarabs, took it in third gear. It is a "kitten" compared to other spots on the course.

After the high banking, 3500 feet of up-and-down straight past the pits end in a tight, sharply downhill-banked right-hander with a vicious entering bump in the pavement. This curve brings the cars around to due south again. It will probably become the most cautiously respected racing circuit bend in the country. Better than a mile of very slow uphill and downhill "esses" follow. Here the photography is excellent and the chauffeurs are busy. Blind curves and reverse road crown abound and the section culminates in an uphill right-hander over a bridge where you point the car into the sky and hope. Most cars are airborne at the apex.

A short straight brings you to the most deceptive and treacherous curve combination of the course, on the evidence of the first meet. A left-hand "dog leg" develops immediately into a perfectly flat right-hand hairpin built on a 210-foot radius. Here took place nearly all the first meet's incidents—and there were many, including a fatality.

Meadowdale is a "drifting" course. Cars that lend themselves to "deliberately broken loose and held there" treatment by experienced drivers are ideal entries. Cars

with less predictable handling characteristics—and any car in the hands of an inexperienced pilot—have a risky, edge-of-nowhere career on this circuit. It is a dangerous course.

The first races revealed that, contrary to predictions, Meadowdale is "slow" by European standards. Chuck Daigh did the fastest lap of 87.9 mph in the Scarab and won the feature at an average of 85.5 mph.

The inaugural revealed many raw edges of hasty preparations. With typical modern real estate sub-section technique (the promoter is a "new suburbia" developer) almost the entire acreage was scraped clean with bulldozers. Not an inch of topsoil was left. This sea of dirt was plucked up by an unlucky 25 mph wind on the opening weekend and swirled in gigantic clouds hour after hour. Visibility was often down to less than one hundred yards. A dip in the main straight beyond the pits was often lost in dust. Drivers proceeded half-blinded through storms of grit, cardboard cups, plates and papers in a mad cartoonist's world of racing in a nightmare. Spectators were plastered black by the filth, literally caked with dirt. Resultant cylinder bore wear was over 20 thousandths in some cases—this after just one 40-mile race.

The crowd fencing, both in type and location, showed remarkably inept planning. So-called snow fencing, thin wooden slats set vertically and wired closely together, are characteristic of racing circuits. After Meadowdale, we all know why snow fencing is standard. Meadowdale's fences are a kind of giant chicken wire, large open mesh offering fine footholds for climbing up and over. In addition, the open design permits everything wind-borne to go right through onto the course. Snow fencing is expensive, awkward to climb or to knock down. Its advantages are on the side of safety; its disadvantages are limited to its expense. It is an interesting commentary on the mentality behind Meadowdale that it was not used.

While the type of fencing is a serious fault, it was as nothing compared to its location. One excellent authority on racing circuits has stated in writing that "there must be 100 places where a car could go through and kill people." Not only were spectators permitted to line the weak fencing within a few feet of the straights but, incredible as it may seem after all these years, wherever another foot could be gained for paying customers, the fencing was placed as close as 12 feet to the course on the outside of curves. We stood at spots where a "loose" car would positively mow down dozens of people in split seconds.

To remove this comment from the realm of supposition, it is a fact that two spectators were hit by pieces of cars due to official spectator areas located too close to the course.

Which brings us to the beer cans, rocks and spitting. One instance after another was cited by those who witnessed of spectators energetically and successfully reaching the passing cars with all three of these missiles. A reputable witness watched from the inside of the high banking where spectators were permitted almost up to the

inner edge of the course. The competing cars on the banking offered an inviting "over the cockpit" target because of the severe camber. As cars passed, the witness reports, empty beer cans would arch out toward them. Accuracy was poor, apparently, and the cars sped around as the cans bounced down off the banking to the infield.

The same game was played with rocks here and at numerous other spots where the crowd was on top of the course. At the flat hair pin where the fences were far too close originally, a policeman was beaten up by drunks when he protested their efforts to flatten the fence and get even closer. The crowd won and found this rock target range one of the best. It is a matter of record that a happy group of four was evicted from the roof of one of the pedestrian overpasses complete with their rock supply. They were participants in the "vertical drop" version of the hit-the-cars game. A gentleman who aimed a paper cup full of coffee from the same location



Above: Construction at "dog-leg" preceding flat hair pin at back of course. Concrete barriers are only separation between straights, which are six feet apart.

Daigh leading Reventlow in the Scarabs at the esses. Dirt embankments and pile of lumber leave no room to spin out.

on a passing car was reported to have made it away safely.

Spitting from the overpasses or from the incredibly close fences was considered by the crowd high sport and an excellent means of venting your spite on the drivers for the quantities of dirt in your throat.

If exaggeration is suspected, let it be pointed out that drivers who competed at Meadowdale have rocks and beer cans on their trophy shelves which they removed from their cockpits after they ran.

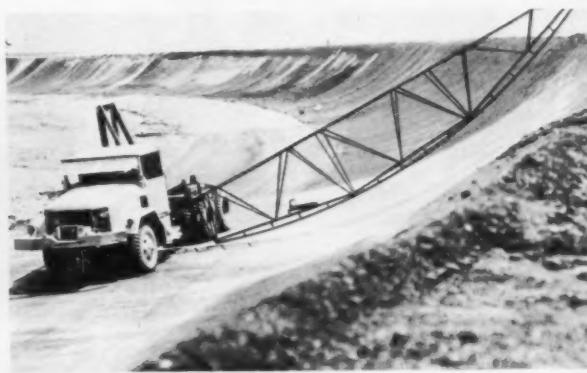
They also have cigarettes. These were removed still burning from cockpits. They were found while the cars stood in the pits and such a thing was possible only because of the construction of the vaunted "permanent pits."

This edifice, made up of old lumber left over from some suburban house scaffolding no doubt, stretched for several hundred feet along the main straight. The idea seemed excellent on paper. Each entrant would have a roofed enclosure, room for his pit car behind his competing car

Construction of straight. Dip is obvious, bringing drivers up "blind" to right-hander at end.



Special rig was needed to check degree and arch of banking



MIDWEST MONSTER: *Meadowdale*

by Dick van der Feen



Besinger congratulates Chuck Daigh on his win in the Scarab.

under cover, and direct access to the open pit area separate from the course immediately in front. However, the pits had a second story. Here was located the "Paddock Club," an exclusive domain for special guests of the management complete with bar and an overhead view. The overhead aspects did it. The 1,800 guests in the Paddock Club, smoking to their hearts' content and leaning out over the entire pit area, presented an awesome fire hazard to any re-fueling operation and the dropped burning butts presented an unprecedented "dodge 'em" challenge to those working on cars underneath.

Crowd control, spectacularly bad as it was around the course, was nearly beyond belief in the pits. Repeated efforts by the stewards to clear the area were frustrated by those who claimed immunity as "friends of Mr. So-and-so," chief financial backer of the enterprise. Efforts to enlist Mr. So-and-so's cooperation were met by that gentlemen stating, "If they're friends of mine, they can go anywhere they please." And so the sheep wandered, some

of them drunk, many of them smoking, in and around the cars for the whole delightful weekend of novel thrills.

Incidentally, the drivers were forbidden access to the second story for food, smokes or drinks. This was consistent with the overall attitude toward the drivers and the club sponsors on the part of the course promoters. Drivers, pit stewards, officials and course workers were secondary to general merriment and anticipated thrills. There was no question of this attitude being the result of oversight or inexperience. It was the reflection of a conscious philosophy that the spectators must get what they paid for and everyone else is a hired hand.

This brings us, indeed, to philosophy—the philosophy behind the layout of Meadowdale Raceway. The conclusion is inescapable that Meadowdale was conceived from the spectators' viewpoint rather than from the drivers'. As such, this is not subject to criticism; but the execution of the philosophy is revealing. It is ironic that with every effort expended

(Continued on page 56)



GM's Circus on Wheels

On display at Waldorf-Astoria, Firebird III is cradled by Firebird IV.

Photos by Irv Dolin and GM

by Stephen F. Wilder

NOW, LOOK, don't get us wrong. The Firebird is not our idea of a sports car. Sure, it has fenders and all that jazz, but basically, it's a circus car. Maybe twenty-three clowns don't come tumbling out when the doors fly open but it's every bit as attention getting—and impractical. But interesting.

And this is exactly why General Motors builds such cars. Even without such dream projects as the Firebird series and the various "cars of the future", the engineers and stylists at the Tech Center always have plenty of interesting projects under way. Each one is thoroughly tested in a working car but putting all the crazy Easter eggs in one mad package pays greater dividends in several ways. From the press coverage point of view, the amount of attention devoted to one spectacular is far greater than the sum of the news items about the individual items there in. The whole, in this case, is greater than the sum of its parts. For proof, compare the number of pages devoted to the Firebird III in this issue with the single column about Unicontrol in last month's issue.

OK, so, as a publicity gimmick, it works. Why else?

To answer this properly, one must understand that engineering, like life, is full of compromises. Conflicting requirements that meet head-on must be resolved. The successful designer is one who, in resolving them, achieves consistently satisfying

(though compromised) results. In a project like the Firebird, the problems in this area are purposely intensified, and traditional solutions are avoided. Every possible component is off beat. This obtains maximum publicity value, showing off GM's talent at designing novelties. It also forces the designers to exercise their imaginations strenuously in order to fit everything together. It's one thing to design a turbine engine. It's another to fit it into a car and make it work. But it's really impressive when they combine this with umpteen other equally *avant garde* features and make all of them work.

Many divisions of GM contribute something, whether it's Harrison with a new radiator or Delco-Remy with something electrical. Given a problem to solve, each puts some talented people to work. Though they start with a relatively clean sheet of paper, they soon discover that this is a real automobile that must work, and horror upon horrors, it's got to be built and running by a certain date! No getting around it, shortage of time is one of man's greatest incentives.

Each of these project groups finds it must give as well as take in its dealings with the others. Sometimes they have to abandon a beloved idea because it is just plain incompatible with the rest of the layout. Sometimes they force others to bend something that "ought" to be straight. But in any case, they are forced

to think and to create. What better challenge is there for a designer?

The end result is that everybody works hard, new ideas are born, talented people in the far-flung divisions get to know one another and finally a product is available, first for test and then for display to the public.

General Motors has been compared in some seriousness with the military services for size and complexity. So perhaps it's justifiable to use a military analogy. The creation of the Firebird III may be likened to a vast war-game which is subsequently exploited in the press for recruiting and/or appropriation benefits. Plan, execute, then publicize.

In GM's case, the whole thing is a technical orgy from beginning to just short of the end. That's when the press bureau takes over to put the name of General Motors once more before the public's eye.

Now some of us may be offended by the styling. That it is way-out cannot be denied. It is thoroughly impractical, too. But so are circus costumes. Remember, like both the earlier Firebirds, this is a circus car, and its single most important design criterion is to attract attention.

When the Firebird I was displayed at the Paris Salon several years ago, the GM brass that went overseas with it all crowded around the Pinin Farina stand to look at the prototype Lancia "Florida"; a clean, crisp four-door sedan if ever there

was one. But the Frenchmen were all thronged around the Firebird. And forty-million Frenchmen can't be wrong, you know. Especially when they're prospective customers.

Nine-finned autos belong in the same category as purple cows; we'd rather see than own one. But four of the nine can be justified rather neatly on functional grounds other than conspicuous finsupposition. It seems that in blocking out the car on paper, the wheels were far and away the highest objects at their respective stations fore and aft. In order to achieve both minimum frontal area and the best possible profile, yet still have fenders that cover the tires, the basically oval cross-section is bulged slightly just above the tire. Fair this in lengthwise and presto, there's a fin!

The four (!) lowest rear fins, placed about where you might see nerfing bars on less esoteric machinery, are said to be very effective in guiding air near the wheel cutout. If true, this is worthwhile, as turbulence here can stir up lots of unneeded drag. The other four fins already mentioned also get credit in this field. As for the ninth fin, well, surely one more won't hurt.

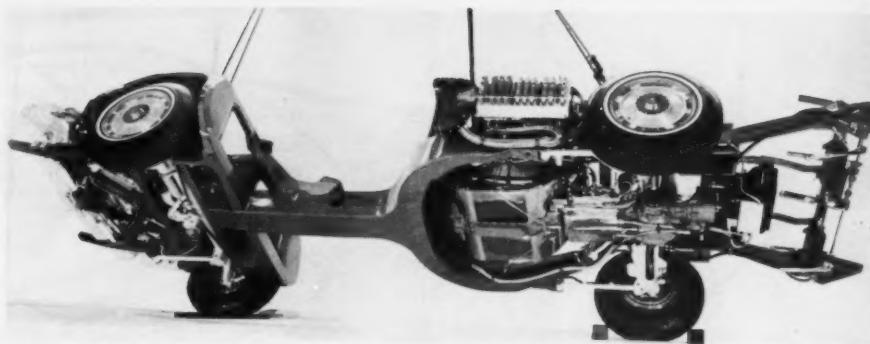
Something the Styling group may be more justifiably proud of, in our opinion, is that except for the name, no chrome or stainless trim mars its surface. Painted Lunar Sand (there we go again) throughout, the excitement of line comes entirely from the shape. Being so complex, this is not too surprising. What did startle everybody was the fascinatingly sinister look of the glossy black, full scale plaster mock-up. Looking like a fugitive from "Sea Hunt", it was used to make the female molds for the Fiberglas body panels.

Like the curtain walls of a glass and concrete office building, the skin just hangs there, carrying only air loads. Most of the panels are on hinges and some will even open under power. All are removable, yet not a single screw head or other fastener appears on the upper surface.

As they are taken off, the Firebird looks more and more like the Cape Canaveral sort of "bird". Every nook and cranny overflows with devices, gimmicks and little black boxes. Actually, black is about the only color they don't use and chromium strikes back in a big way on all the little bits of plumbing that "just wouldn't look right if we only painted them". Remember, this "special" is also a Concours D'Elegance entry. Don't think that doesn't give the crew a few headaches as show time nears.

The passenger compartment, about which more later, separates two power plant areas. Up front is a small, water-cooled flat twin. It drives enough hydraulic pumps and alternators to handle all the auxiliary power functions; power steering, braking and throttle, full-time air conditioning, and air-oil suspension. In back is a 225 hp gas turbine which has only one task; propelling the Firebird.

There's a reason for this separation. The pumps and generators have to be geared to their power source in such a way that they can work at full strength even when the car is idling. But when the car is running full tilt down the road, these auxiliaries are spinning like mad, eating



In addition to actual car, a "show chassis" too is concours-prepared.



Styling Dept's Stefan Hapsburg explains some of the Firebird's intricacies to the author.



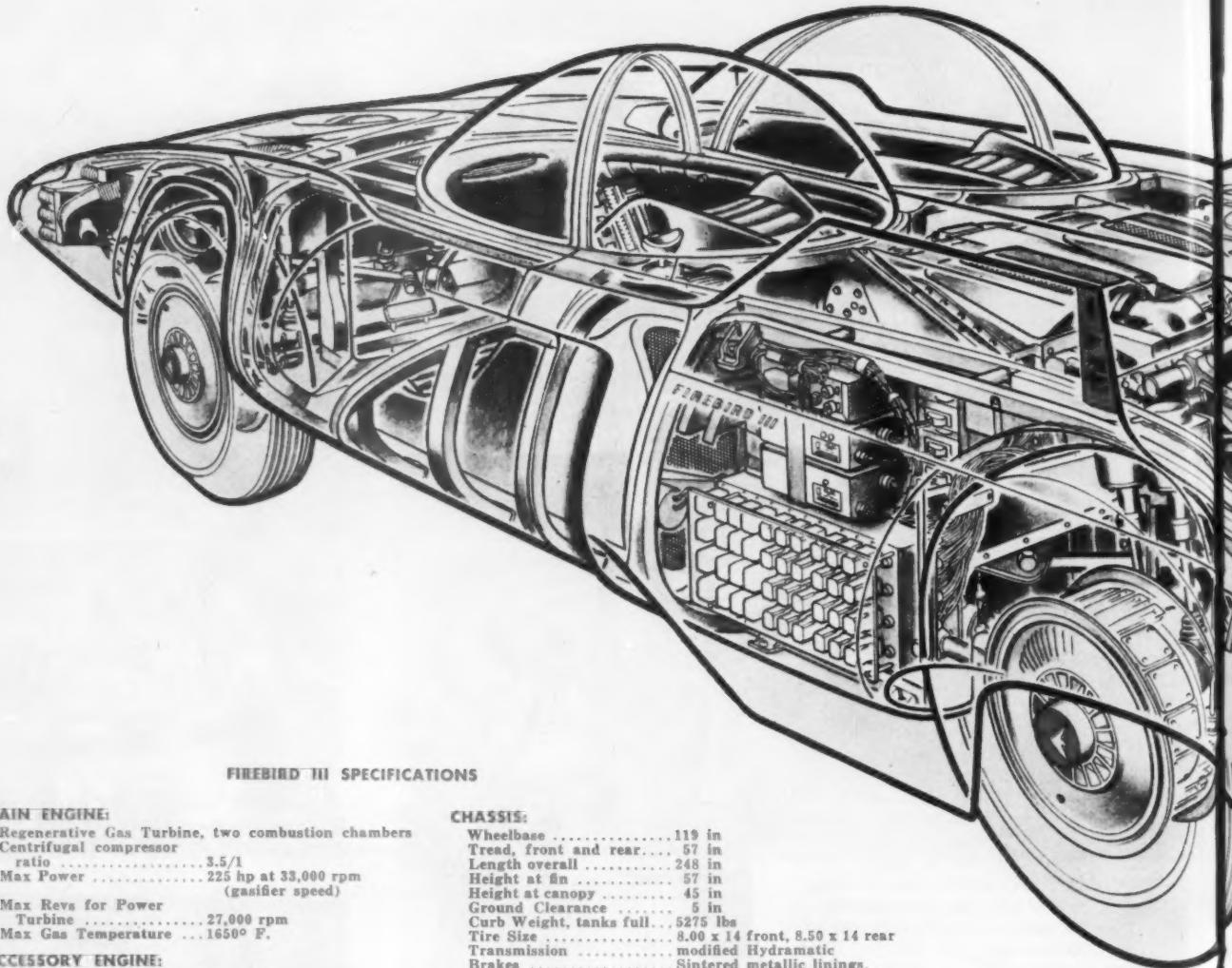
As with any "special", the builders all want to be in on the very first ride. Four made it, a mere 100% overload.



Next stop after final bodywork was GM's test track at, appropriately, Phoenix, Arizona. Here adjustments were made and difficulties ironed out.



Engine enters chassis from below. Front mount is wide plate to allow for 1/4-inch growth at high temperatures.



FIREBIRD III SPECIFICATIONS

MAIN ENGINE:

Regenerative Gas Turbine, two combustion chambers
 Centrifugal compressor
 ratio 3.5/1
 Max Power 225 hp at 33,000 rpm
 (gasifier speed)
 Max Revs for Power
 Turbine 27,000 rpm
 Max Gas Temperature 1650° F.

ACCESSORY ENGINE:

Two cylinders, opposed, water-cooled
 Valve Arrangement pushrod ohv in-line
 Bore and Stroke 2.50 x 2.00 in (63.5 x
 50.8 mm)
 Displacement 19.6 cu in (322 cc)
 Power Output
 (continuous) 10 hp at 3600 rpm

CHASSIS:

Wheelbase	119 in
Tread, front and rear	57 in
Length overall	248 in
Height at fin	57 in
Height at canopy	45 in
Ground Clearance	5 in
Curb Weight, tanks full	5275 lbs
Tire Size	8.00 x 14 front, 8.50 x 14 rear modified Hydramatic
Transmission	Sintered metallic linings, 4 in wide, 11 in dia integral wheel-drums
Brakes	Electrical systems 12 volt DC, 110 volt AC Hydraulic systems 3000 psi for suspension 1000 psi for Unicontrol and brake flaps
Power to Weight Ratio with two passengers	25 lbs/hp

up power as if it were going out of style. This, to say the least, has a deleterious effect on gas mileage. What to do?

GM's answer: use two engines, one to drive the car and another to run the gadgets. The auxiliary power unit (APU), designed and built by the GM Engineering Staff, operates at a constant 3600 rpm, which allows the use of lighter, smaller accessory units of much higher than usual efficiency.

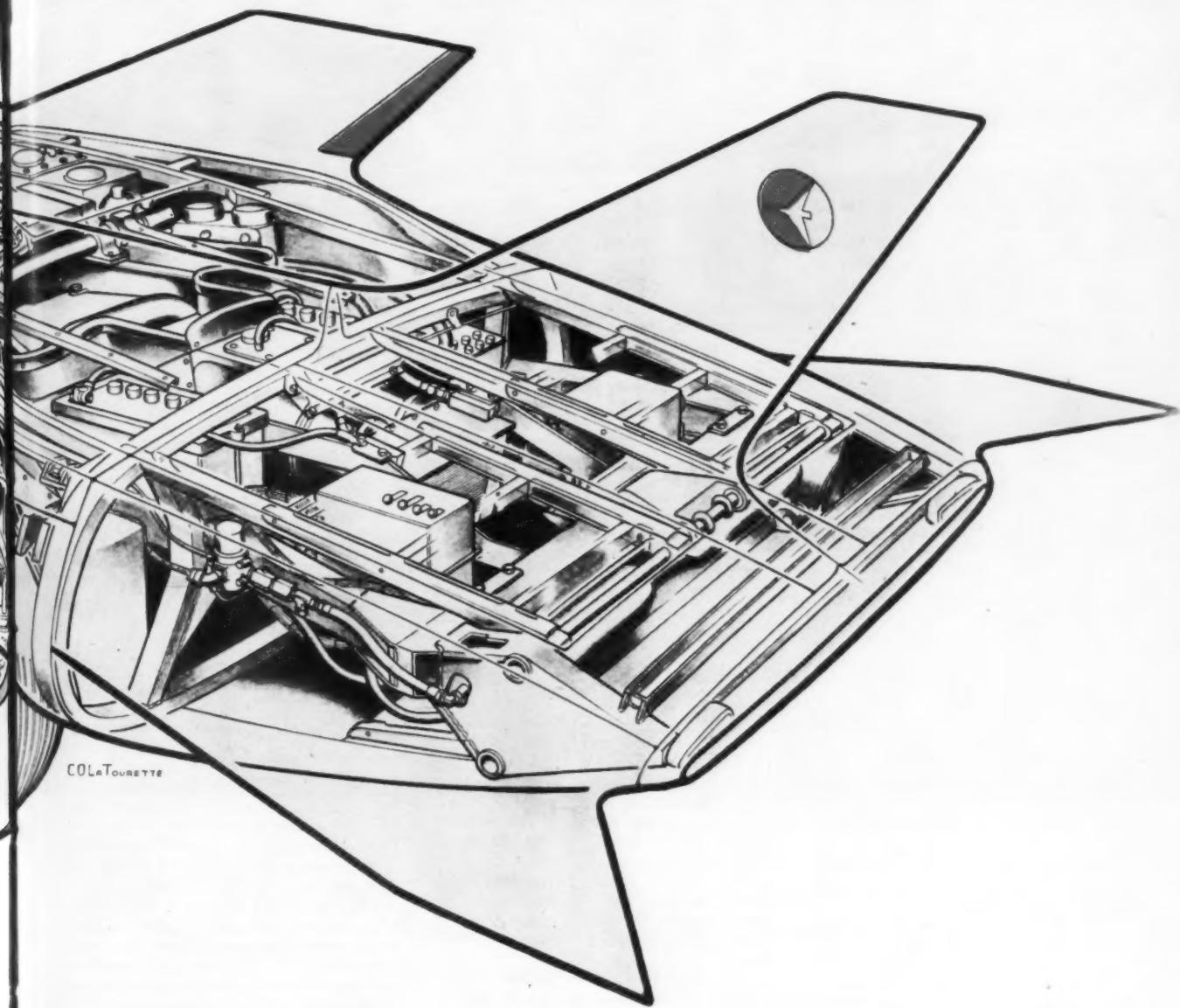
It's rated at ten horsepower which isn't much for 322 cc, even at this speed, but specific output wasn't as important as reliability and quietness. Technically, it's interesting in that each crankcase half is cast in a unit with a cylinder block and cylinder head. Furthermore it's all aluminum without any liners or chrome plating on the bores. The secret is a high silicon content which makes it wear resistant. Just to wrap it up, the patterns were designed for die casting, though the few engines actually built were cast more ordi-

narily. Weighing but 53 pounds, it uses a pushrod and rocker set-up similar to the Chevy V-8's.

Driven directly off the rear of the APU is a 110 volt, sixty-cycle, three-phase alternator (generator of alternating current) which can be used also as a synchronous motor. Ostensibly provided so the occupants of the Firebird can plug in an electric razor or watch a portable TV set while picknicking (?), it's really there so that the exhibitors can plug in the Firebird to make all its gadgets do things for the audience. In this condition, it declutches from the APU but continues to drive the hydraulic pumps and the 12 volt alternator through a series of flat belts. Originally notched timing belts were used but these made too much noise. The 12 volt AC is fed to a selenium rectifier, the resulting 12 volt DC serving the usual automotive purposes.

Two hydraulic pumps are required, the 1000 psi outfits serving the steering, brak-

ing and throttle control systems while a 3000 psi aircraft-like job handles the air-oil suspension system. The higher pressure permits reserve tanks of one-third the size otherwise needed. The arrangement of the control system was discussed in last month's issue; again we see no steering wheel in the cockpit, just a centrally spotted "Unicontrol" joy-stick and a single "panic pedal" which activates the reserve system for emergencies. Sorry, no ejection seat! Maybe it comes on the deluxe model. Reverse is selected by twisting the palm-fitting control handle 20° either way, park by twisting it 80°. Finger-tip pressure on a Retard button activates a liquid-cooled transmission-differential brake. The coolant itself is blasted with air scooped in by the automatically opened, rearward hinged brake panels behind the main power plant. There are four of these panels, top and bottom, left and right of center line. They also open under normal braking above 30 mph. Like the brake lights set into



the trailing edge of two of the fins, their behavior is proportional to the movement of the Unicontrol joystick. Major braking effort is performed by the four-inch wide drum brake in each wheel.

These Turb-Al brakes are quite splendid. Though the sprayed-on molybdenum braking surface is integral with the aluminum center section, the separate rims are in two pieces (inboard and outboard). They are fastened to the wheel proper with fourteen inch circlips! As well as providing a means of changing the tubeless tires without hammering at the soft aluminum rims, a further advantage of separateness is the heat barrier thus erected between tire and brakes. Hot tires, cool tires.

Linings on the two trailing shoe (but all-servo) brakes are the Moraine division's newly announced sintered metallic pads, the same as those used on the secondary shoes of the Corvette.

The center section of each wheel is a

beautifully cast centrifugal blower. Air enters on the outboard side into eighteen openings near the hub, moves toward the rim through bifurcated passages which then sweep inboard across the "outside" of the braking surface, letting the air exit through 36 openings along the inboard rim. Unlike ordinary centrifugal blowers, the shrouds here are integral so that the more mundane tasks such as securing the tire to the car may also be fulfilled.

These wheels were brake-tested in a special tow rig. The only time brake fade was a problem was below 30 mph when the wheel turned too slowly to act effectively as a fan. At higher speeds, it just dragged and dragged, nearly wearing out the tow car in the process. Though they certainly don't look cheap or easy to build, they would certainly look good on a Grand Prix bolide. Just think, eleven inch drums inside fourteen inch rims. Four inches wide, too, and not even projecting into the airstream.

The brakes on each wheel can be overridden by an anti-skid control. Though the hearts of these four units are mounted in the front left fender, a sensing device at each wheel detects incipient skids from the associated reduction in braking torque on the backing plate. Electronic circuitry immediately reduces the hydraulic pressure to the brake concerned, preventing that wheel from locking up completely and sliding.

A fancy touch on the front wheels is that the hub-caps, sporting the Firebird III emblem are really mounted to the stub axle so that they don't revolve with the wheels. Somehow, they couldn't quite figure out how to do this on the rear ones.

An extraordinary touch at the front is the suspension. Suddenly it's 1930, for a rigid axle beam connects the two front wheels. Though no especial effort has been made apparently to keep it super-light, the concept here was to attempt to take advantage of the all-hydraulic steering.

Firebird III

Beam axles went out of favor because of their incompatibility with steering geometry. As springs got softer and speeds grew faster, wheel tramp became an impossible problem. But on the Firebird III, there is no rigid steering connection between wheel and frame; nothing but high-pressure hydraulic lines.

The actuating cylinder itself is mounted right on the beam axle and though possibly unfortunate from a purist's point of view, it and two equal-length track rods and a pivoting arm are all just as unsprung as the axle and the wheels themselves. Unfortunate, that is, as far as ride is concerned, but from a steering slant, it's splendid. Bounce or rebound movements cannot affect steering angles as the steering mechanism and the suspension are one firm package, quite independent from the rest of the car.

As with the de Dion rear axle, location is obtained through four control arms. The lower, outboard pair run straight forward to the rubber-bushed frame mounts while the upper inboard duo run inboard and diagonally forward, equaling an A-bracket in their combined longitudinal and lateral locating function.

Springing and damping both are achieved through an air-oil system. Self-leveling devices work both on a fore and aft and a side to side basis with position sensors on both front wheels and the left rear. Actually the sensors follow the movement of the lower control arm in each case, picking up their motion only a few inches from the frame mounts.

"Skydrol", a non-flammable hydraulic fluid used extensively in the aircraft industry is featured on the Firebird III. It does have a drawback, though. It just plain dissolves most electrical insulations. The only exception is Teflon so naturally it, too, is used throughout.

Much of the extensive array of wiring is involved in the highly complex air conditioning system. Inside the cockpit there is but one control to be set, a thermostat. This determines what the interior temperature is to be and from there on out, it is all automatic. There are thermocouples all over the place measuring temperatures inside this and outside that and feeding the whole lot of info into one of the many shiny, mysterious boxes in the front compartment. This digests the information, ponders but a moment and then operates a variety of flaps, cams, butterflies and blower motors to ensure that suitable amounts of fresh outside air at whatever its temperature may be is mixed with a selected quantity of already warm (or cool) interior air and discharged at appropriate velocity into the cockpit. One vent, rather Citroen-like is directly in front of each passenger.

Incidentally, it's odd, but without a steering wheel, neither seat seems to be a driver's seat and therefore one thinks of the Firebird as having only passengers. Perhaps this symbolizes what some people think is wrong with automotive design, too.

But of all this heating and cooling paraphernalia, one pair of items makes up for everything, even the fact that you

can't casually open a window. These are the two blowers, mounted on the bottom of each seat to draw cooling air through ventilated, contoured, thoroughly relaxing seats. Insiders at GM call them can fans.

I wonder what there is to keep the driver awake. The seats lay back like an English-built Bonneville streamliner's, they're heavily padded — at least, where they need to be, and they even have motor-driven, adjustable headrests and toeboards. Some even claim it's the first time they've been really comfortable in any car. And as far as driving is concerned, well, there's that Unicontrol stick again. Of course, if ever that gets to be too much effort, you just turn on the Autoguide and Cruise-control.

Autoguide is GM's answer to Turnpike Tedium. Two plastic covered prongs near the front axle swing down to sense a magnetic field around a cable buried in the center of the traffic lane. When one prong is closer to the buried cable than the other, the difference in signal strength is used to make appropriate steering corrections. Not very exciting from a sporting point of view but turnpike driving never was.

Cruisecontrol is a related gadget; with it the driver can select a cruising speed which the car will maintain uphill and down. These two devices eliminate in turn the two degrees of movement of the joystick, leaving the two passengers — neither of them driving now — nothing to do but lean back on the adjustable headrests and listen to "Music to Ride By" or maybe even talk to each other on the intercom.

In order to give the people something to do, the trip odometer has an interesting twist. Not only can it be reset to any number including zero but it can also be made to run backwards, giving miles to go instead of miles gone.

You want to drive two hundred miles before you stop for lunch? Set it at 200, put it on subtract and get going. When it reads 000, start munching, you're already there.

The front half of the bubble canopy opens with the door, the whole massive unit pivoting about a skewed hinge line at the inboard front corner. More fascinating than its weird position when open is the news that there is no door latch at all. Instead, rubber seals along the edges are inflated with from five to twenty-two psi of air. Similar to the method of sealing aircraft canopies, this light pressure along the entire length of door edge grips tightly and at the same time fills irregularities to eliminate wind whistles.

To open these latchless doors? Why, we're glad you asked, say the GM publicity men. All you do, (now watch carefully) is snap an ultrasonic key — a mechanical version of the noiseless dog whistle and voilà, the doors swing open. Dunno what you do if you only want to open one of them though. So it does rain in on your mother-in-law. She's waterproof.

The microphones that listen for the whistles are located inside the air intake duct. So is the emergency latch which opens the engine cover when the battery is dead. Not to open the doors, mind you, just so you can recharge the batteries.

There's a new wrinkle in headlights. High beams are aircraft landing lights, the very thing we've often wished for when somebody wouldn't dim theirs. But low beam is cared for with a thin, horizontal fluorescent tube mounted within the nose. The horizontal slats which make up the "radiator grille" are actually parabolic sections. They focus the beam and simultaneously provide a cut-off to prevent dazzle.

In the cockpit, though, there's no headlight switch. Instead two photoelectric cells, mounted flush in the skin behind each doorway, turn them on whenever it gets dark. Two of them, so shadows of trees, for instance, won't trigger them too soon. Like many of the gadgets on the Firebird, it's an interesting idea but why bother? Besides, what if it's a big tree?

We're used to looking into Detroit engine compartments and not seeing the engine for the rest of the clutter but we were hardly prepared for the dazzling confusion which surrounds and hides the Whirlfire GT-305 regenerative gas turbine.

Confusion, because gas turbines are built, so to speak, from the inside out. The turbine shafts are its heart and soul and everything else, essential as it may be, takes pot-luck as far as location is concerned.

Dazzling because everything seems to be chrome-plated. For more than just appearance's sake, too. Unlike piston engines, turbines are cooled internally. That is, more than enough air to burn all the gasoline runs through the system. The only purpose for this excess is to keep temperatures at the turbine blades within reason. Additional air for cooling blows around the outside of the turbine. To make the latter more efficient, neighboring components are protected by highly polished, chrome-plated shrouds. The result is that a casual glance into this part of the Firebird reveals practically nothing.

The outstanding feature of the GT-305 is its regenerators. Self-cleaning as they rotate through the hot exhaust, they cool it to 300-500°F. The heat thus absorbed is dumped into the compressed intake air. Unlike piston engines, turbine efficiency is increased by raising the temperature of the intake charge.

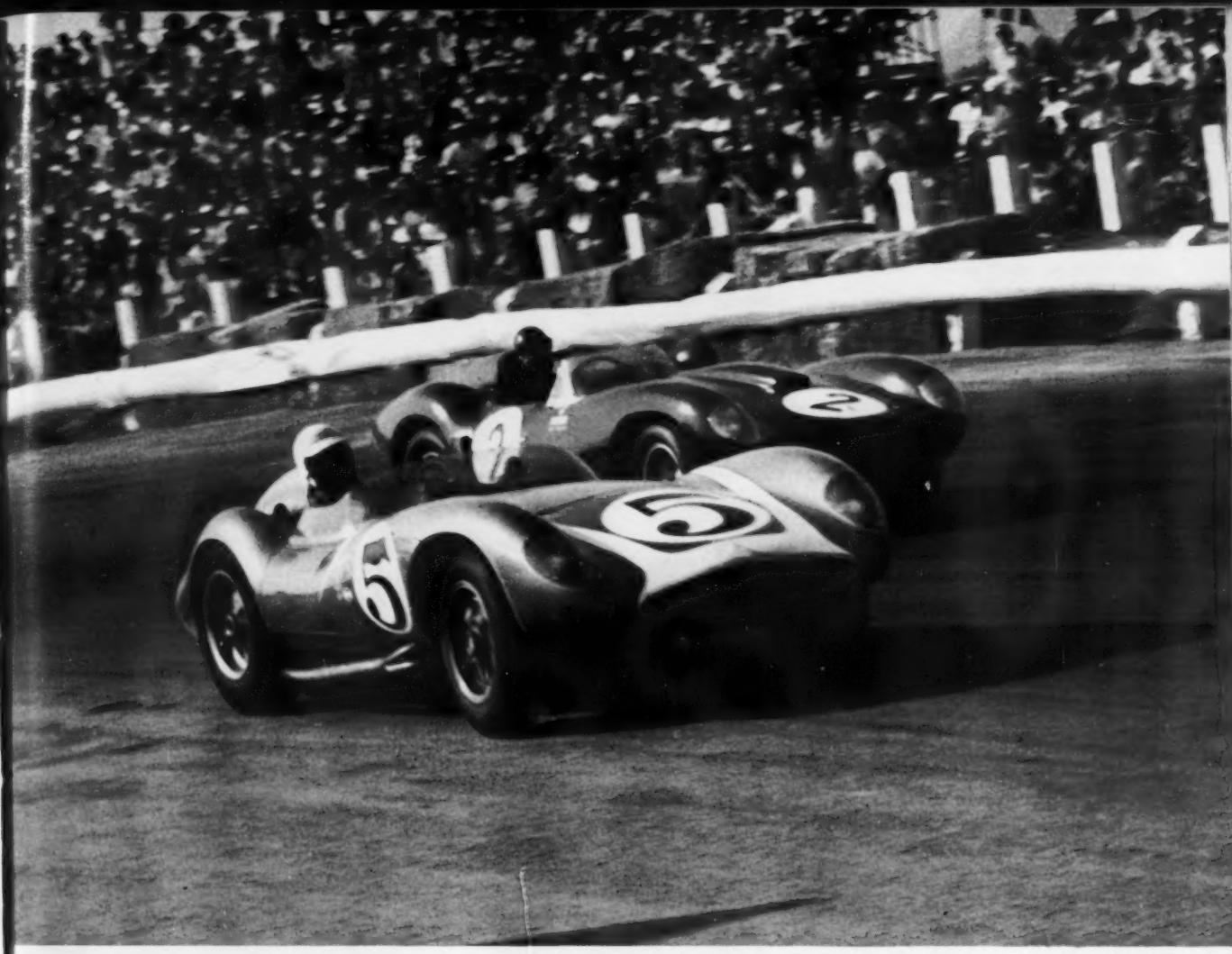
The first stage of the turbine is called the gasifier, it is on the same shaft as the 3.5 to one centrifugal compressor and its only job is to spin it. Max revs are 33,000, power then is 225 hp. The second or power stage turns at a mere 27,000. This feeds into a modified Hydra-matic; to keep it from being too modified, a reduction gear brings the rpm within reason. Bolted right to the Hydra-matic (which has no fluid coupling) is the differential casing. From this, doubly U-jointed half-shafts pass the word on to de Dion-located rear wheels.

Having worked our way to the rear of the Firebird III, what better way to end than the way the French do:

FIN

Stephen F. Wilder





Photos by Bob Rolofson and Gordon Chittenden

Riverside: American Road Racing Comes of Age

by Jim Mourning & Bob Rolofson

ON a blistering hot week-end in mid-October, road racing came of age in the United States. Over the two day period, a dozen United States Auto Club drivers, a handful of professional and semi-professional road racing pilots and some 20 former lily-white amateurs met in the United States Grand Prix for sports cars at the Riverside International Motor Raceway in Southern California.

Although the \$14,500 in prize money was comparatively small potatoes and the event was of little international significance, over 100,000 spectators paid an estimated \$300,000.00 in cash for the privilege of seeing stars from widely separated worlds of racing meet head on.

In retrospect, the race was, without any semblance of doubt, the biggest and most important automotive event in the history of the West Coast. The crowd that turned out to see the dicing was roughly comparable to the masses that pour in for a Rose Bowl spectacle and, as a matter of fact, as many gate attendants were used as are needed at a sell-out for the Pasadena pigskin classic.

As much as a month before the race, reserved seat tickets were selling faster than heated hula hoops in a nudist colony and all hotels and motels in Riverside and nearly a dozen

surrounding communities were sold out weeks in advance. Some private home owners rented their spare bedrooms — without trying to gouge the luckless public — and others opened their backyards and driveways to those with sleeping bags and trailers.

On Sunday morning, the crowd began flocking into the track area as early as 7 a.m. and cars were still inching along the roads when the main event began at 2 p.m. Some spectators parked as far away as two and even three miles and walked to the gates.

The overwhelming crowd, of course, wasn't the result of some miraculous and spontaneous burst of enthusiasm for road racing. In the opinion of most racing experts, the reason for the reaction could be summed up in one word — publicity! For the first time since 1950 — when local enthusiasts began trying to make road racing a part of the American sporting scene — the general public got the word in sufficient quality and quantity. For at least two weeks before the event, it was impossible to pick up a newspaper or turn on a radio or television set without hearing something about the upcoming race. During the last few days, it all but crowded the Rams, USC and UCLA completely off the sports pages.

Everything considered, it could hardly have been otherwise. The event was sponsored for charity by the Times-Mirror newspaper corporation and run by the California Sports Car Club, the West's dominant road racing group, in conjunction with USAC, who also sanctioned the race along with the FIA. Never have so many powerful organizations gotten behind one American race.

Because of the resulting publicity, some 16,000 people turned up on Saturday merely to watch the practice sessions and the qualification runs to determine starting positions. On an ordinary race week-end, this would be considered a satisfactory turn out for the Sunday main event. And the spectators apparently got their money's worth. At least they could boast of having seen such international stars as Joakim Bonnier, Swedish champion and winner of the recent Watkins Glen event; Roy Salvadori, rated fourth in Grand Prix standings; and Jean Behra, the champion of France, who drove the 160-hp Porsche RSK in which he won the Berlin Grand Prix.

Unfortunately, Stirling Moss, who was to drive a new 4.5 Maserati, was unable to obtain clearance from the promoter

Dented Scarab proves that play-time is over in U.S. road racing. Wrinkles were caused by von Neumann.



Chuck Daigh cranes his neck to see just how much room he has on the outside. His Scarab proved to be all-American winner.

of the Morocco Grand Prix, scheduled to be run the following week-end, even after the FIA waived its rule against class A drivers competing in non-calendar events outside their own countries. The promoter had built his entire pre-race publicity around the clash between Moss and Mike Hawthorne and feared even a slight injury to Moss would negate his efforts.

Also displaying their driving skills were Phil Hill, winner at both Sebring and Le Mans; Masten Gregory, who finished fifth in world championship point standings in 1957; Carroll Shelby, the U.S. champ in 1956 and a constant European competitor; and lesser lights with varying degrees of national and local prestige. Of them all, the sentimental favorite was undoubtedly Max Balchowsky and his Buick-powered "Old Yeller," probably one of the ugliest specials ever seen on any track.

The USAC-Indy contingent was represented by such drivers as Jim Rathmann, who won at Monza and established a new average speed mark of 166.7 mph in the process; Johnny Parsons, winner of the 1950 Memorial Day classic and third place finisher in the Monza 500; Troy Ruttman,



Max Balchowsky proved to be a crowd-pleaser on the ugliest special ever spawned—brick-like Old Yeller.

Johnny Parsons bites handkerchief to keep from biting dust caused by back-of-grid starting spot.



Jean Behra went for small-displacement money in 1532 cc RSK Porsche. First spot earned him \$1500.



Greatest excitement of the day was generated by the duel between Chuck Daigh on the Scarab and Phil Hill on a 4.1

1952 Indianapolis winner; Ray Crawford, 1954 Mexican Road Race class winner and Indy contender; George Amick, second place finisher in the 1958 Indianapolis race, and a handful of others.

Actually, surprises were the order of the day during the qualification runs. When Balchowsky proved that beauty was only skin deep by boomerang his "Yellow Peril" around the 3.3-mile circuit to come within about a second of matching the course record, the crowd was more than a bit surprised and more than a bit pleased. Few of them realized that he had made an excellent showing despite two mistakes. First, he ran in racing trim and with a full tank of fuel, not realizing that many of his competitors stripped off everything that wasn't welded down and carried only four or five gallons of gas. Secondly, he slowed down during his first qualifying lap, thinking something was wrong when spectators



The winners! Chuck Daigh and the Corvette-powered Scarab sizzler. Quick-change drive shaft gave trouble during race.

on the corners shouted and waved their arms frantically. They were merely cheering for their sentimental favorite.

Before the murmur of excitement had died down, however, six drivers had bettered Balchowsky's time and four of them had shattered the course mark of 2:09.7.

Johnny von Neumann, a strictly hot and cold pilot, wheeled his 4.1 Ferrari around the 9-turn circuit for a surprising 2:10.8 qualifying time. Dan Gurney turned 2:10.2 in Frank Arciero's 4.9 Ferrari. Bob Oker, tooling a team Aston-Martin DBR2, came up with a 2:09.6 lap, clipping a tenth of a second off the old record.

Then the oil hit the fan! In rapid succession, pre-race favorite Phil Hill recorded 2:06 in a 4.1 Ferrari that had virtually been built especially for the event; Lance Reventlow, an average driver, wheeled one of his \$50,000 Scarabs about in 2:08.1; and Chuck Daigh, an old hand in almost every phase of automotives, thundered around the circuit in an astonishing 2:04.3—shaving nearly 5½ seconds off the track record—in another Corvette-powered Scarab II.

A rather unimpressive Roy Salvadori wound up eighth on the grid with 2:11.5 in an Aston-Martin whose 3-liter engine apparently wasn't up to the task of beating the hairier machinery. The top ten were rounded out by Richie Ginther in a 3-liter Ferrari and Jerry Unser—the only name not familiar to sports car fans to appear in the top 16—driving Mickey Thompson's Kurtis-Cadillac.

Both Troy Ruttman in Bill Murphy's Buick-Kurtis and Johnny Parsons in Chuck Porter's Chevy-powered special encountered mechanical difficulty and started at the back of the pack on Sunday.

The under 2000 cc cars—which raced for separate prize money—were led by the 1532 cc Porsche RSK driven by Jean Behra, who racked up a 2:14.3. Ken Miles drove a Porsche RS to a 2:17.9 lap and Pat Pigott made third fastest time in a Lotus Mk II at 2:18.6. Bob Drake, figured to be a top contender in his Cooper-Climax, turned an unimpressive 2:24.2 while trying to nurse along his engine.

Honors for top speed of the day went to Hill, who was clocked at 163 mph through the traps at the end of the 1.1-mile long back chute.

When an estimated \$1,000,000 worth of racing machinery took the green flag on Sunday, Daigh and Reventlow, both in Scarabs, easily out-dragged the pack into turn one. By the end of the first lap, however, Hill had his 4.1 Ferrari in the lead. In the meantime, the field had been suddenly and spectacularly thinned. Diving into the esses, von Neumann's Ferrari walloped the rear end of Reventlow's Scarab and ricocheted into a ditch. It didn't get a chance to get lonesome. Within split seconds, it was joined by Ak Miller's Chevy Special. Before the race was over, Pete Lovely's Lotus and the Kurtis-Cad driven by Jerry Unser were added to the collection of defunct automobiles on what is normally a fairly easy bend.

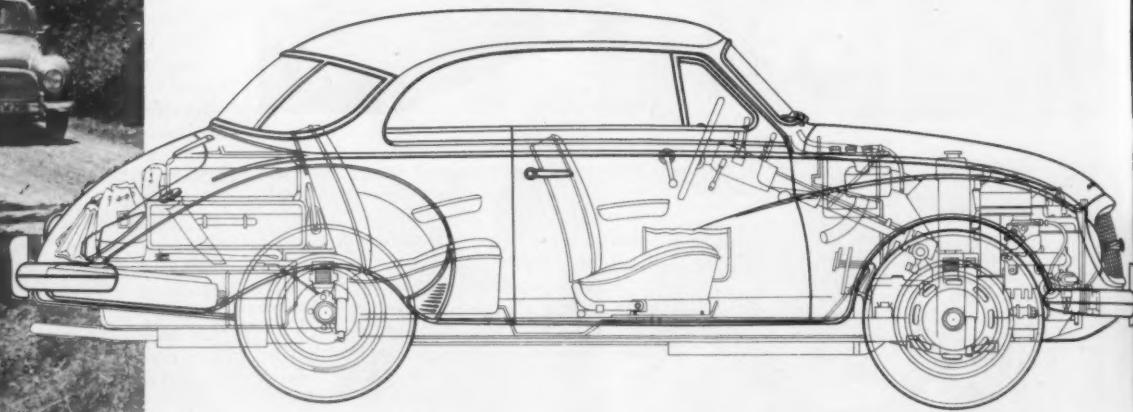
(Continued on page 62)

SCI

ROAD TEST:



AUTO UNION 1000



IN Zschopau, Germany, in 1916, a man by the name of Rasmussen was developing a steam-powered vehicle. Auf Deutsch, das heisst Dampf Kraft Wagen. But the war interrupted Rasmussen's steam experiments and he turned to the construction of a two stroke 1/4-hp toy car engine, called Des Knaben Wunsch (the boy's wish). This two stroke power plant was increased in size to 98 cc and it was giving 1-hp when adapted to bicycles. In 1920, it sold by the thousands in Germany, and Rasmussen's DKW firm was in the motor bike business in a big way.

In 1932, he bought out the Audi and Horch factories in Zwickau, as well as the automobile department of the Wanderer factory in Chemnitz. He combined them into one firm, Auto Union AG.

Today, the matter has gone one step further with their purchase by Daimler-Benz AG, of Stuttgart. This is without doubt one of the largest automotive combines in the world today, and they offer a tremendous variety of two and four-wheeled (and stroke) vehicles.

So much for historical background. Our test car was, specifically, the 50 bhp (SAE) Auto Union 1000, a two-door "hardtop" coupe. Typically DKW, it is a front-wheel-drive car powered by a two-stroke, water-cooled three cylinder inline engine, i.e., valveless. It is a bored-out version (74 instead of 71 mm) of the 896 cc Grosser DKW (which in turn is "grosser" than the long-discontinued two-cylinder Deke.) At normal touring speeds the engine is quiet with excellent low-speed torque characteristics for bumbling along in traffic in third or even fourth gear. Recent modifications to the car's exhaust system and success in achieving a very lean oil-gas ratio have all but eliminated any sign of the expected cloud of blue smoke, as well as the famous two-stroke "burble". At idle speeds, you can still tell it's a Deke.

We were impressed with the acceleration of the DKW. It's no strain for a resourceful driver to show his heels at the stop light. (We found it very easy to spin the front wheels).

40

The car will cruise all day long at 75 mph, with its timed maximum at 80.

During our acceleration runs, we had difficulty choosing shift points, due to the absence of a rev counter and the impossibility of getting "valve-crash". When turned up until she won't wind any more, this two stroke takes on all the characteristics of an over-stressed Electrolux. But we'll say right now, that this Auto-Union puts out a surprising amount of steam when getting away from rest.

One is aware of the *fwd* only when the driver really lets the clutch in abruptly. Then there is a noticeable amount of wheel tramp. The rack and pinion steering is harder than conventional 1 1/2 liter sports cars, but not all that much. In fact, we expected it to be stiffer.

Probably the most striking impression of the AU 1000 is its extraordinarily high cornering power. It took us a while to learn to keep our foot flat on the floor when cornering at speeds so high that a more conventional car would swap ends. On a loose gravel surface the stability and "sticktion" of the DKW borders on the incredible and we began to understand the reasons why and how these cars have enjoyed such tremendous success in international rallies. One has the impression that a driver can pound the car without mercy, flog it for all it's worth and it will come back for more. The Auto Union 1000 is a rugged automobile, its beefy leaf springs and solid frame as well as the unbreakable 980 cc engine, all substantiating this impression.

We had absolutely no fade during our ten-stop brake test and except for a notable increase in pedal travel, the brakes were just as good when we returned the car as they were at the beginning of the test, and we hadn't pussyfooted about.

The interior is exceptionally roomy with its flat floor stretching from door to door and toe board to trunk. The front seats are comfortable for touring though for competition they would benefit from more lateral support, since

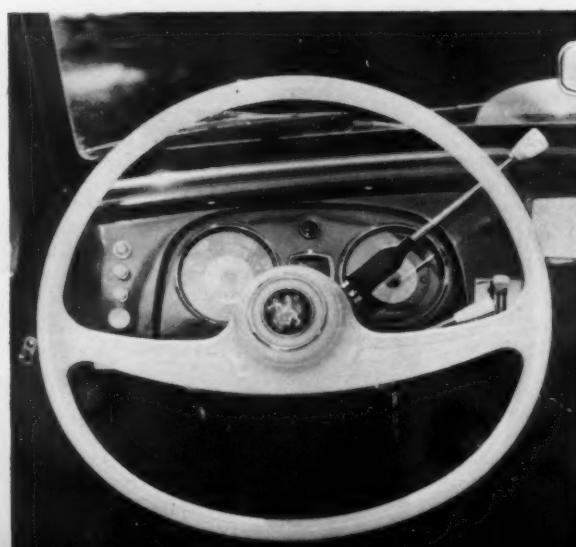
(Continued on page 54)



Two-stroke three-cylinder runs with smoothness of six cylinders. Separate coils for each spark plug. Grille removes for access.



Vigorous cornering with front-wheel drive demands foot flat on loud pedal plus firm grip on non-circular steering wheel. Steer well into turn. Oval shape adds to driver's knee-room.



AUTO UNION 1000

Suggested Retail List Price \$2395
U.S. Importers:

Robt. E. Lee Mtrs. Inc.
520 W. 19th St.

New York 11, N. Y.

Peter Satori, Ltd.
325 W. Colorado St.

Pasadena, Calif.

Imported Auto Dist. Inc.
1405 Sixteenth St.
Racine, Wisconsin

PERFORMANCE

TOP SPEED:

Two-way average 79.2 mph
Fastest one-way run 80.7 mph

ACCELERATION:

	seconds
From zero to 30 mph	5.6
40 mph	10.0
50 mph	15.7
60 mph	23.0
70 mph	38.8
Standing 1/4 mile	22.4
Speed at end of quarter	59 mph

SPEED RANGES IN GEARS:

I	0-22
II	7-39
III	12-64
IV	17-top

SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed	Indicated Speed	Timed Speed
30	30	60	56
40	38	70	65
50	47	80	75

FUEL CONSUMPTION:

Very hard driving 16 mpg
Average driving (Under 60 mph) 32 mpg

SPECIFICATIONS

POWER UNIT:

Two stroke, water-cooled, in-line three-cylinder	
Bore & Stroke	2.91 x 2.99 in. (74 x 76 mm)
Stroke/Bore Ratio	1.02/1
Displacement	59.8 cu. in. (980 cc)
Compression Ratio	7.25/1
Carburetion by	one Solex 40 JCB downdraft
Max. Power	44 DIN (50 SAE) bhp @ 4500 rpm
Max. Torque	61½ lbs.-ft. @ 2250 rpm
Idle Speed	500 rpm

DRIVE TRAIN:

Transmission ratios	
I	3.82
II	2.22
III	1.31
IV	0.915
Final drive ratio	4.72
Axle torque taken by engine-gear box mounts.	

CHASSIS:

Frame	Box-section with X-member
Wheelbase	92 in.
Tread, front and rear	56, 53 in.
Front Suspension	Transverse leaf spring, lower wishbone
Rear Suspension	Transverse leaf spring, tubular rigid axle
Shock absorbers	Telescopic
Steering type	Rack and pinion
Steering wheel turns L to L	2%
Turning diameter, curb to curb	36 feet
Brakes	2 leading shoe front
Brake lining area	105 sq. in.
Tire size	5.60 x 15

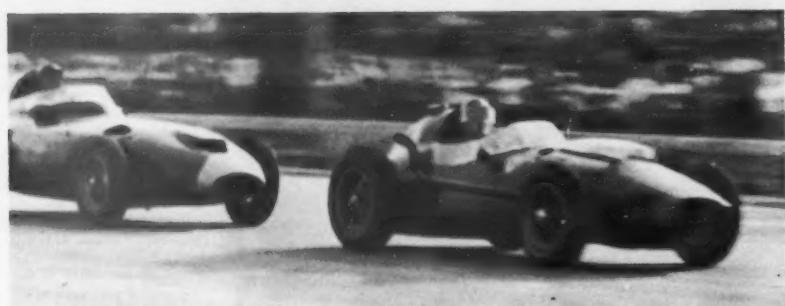
GENERAL

Length	166 in.
Width	66 in.
Height	57 in.
Weight, as tested	2280 lbs.
Weight distribution, F/R as tested	54/46
Fuel capacity	11.8 U.S. gallons

RATING FACTORS:

Specific Power Output (SAE)	0.83 bhp/cu. in.
Power to Weight Ratio	45.6 lbs./hp.
Piston speed @ 60 mph	1780 ft./min.
Braking Area	0.92 sq. in./ton
Speed @ 1000 rpm in top gear	16.8 mph

THE WORD, SIR, IS "PREE"



The 60th lap: Brooks slipstreaming Hawthorn just prior to passing.



Hawthorn's frantic tire change during the thirty-fifth lap.

Tony Brooks in the winning Vanwall on the eighteenth "giri", fifty-two to go.



MONZA GP

by Jesse L. Alexander — Karl Ludvigsen

The Vanwall "Monza Coupe". Air scoop on the nose is for the oil cooler, bubble cockpit was used in practice but was removed prior to the race.



Photos by Jesse Alexander



AT ONE POINT it looked as if the 1958 Italian GP was going to be won by an American, said American putting on a terrific show in the opening laps by leading the whole pack of thundering Grand Prix cars for four "giri," when Stirling Moss left his braking a bit late at the end of the back straight and nipped into the lead. We're speaking of Phil Hill who covered himself with honor in his first Formula I Ferrari drive. Phil had fastest race lap, setting a new Monza record, and is obviously number two Ferrari Formula pilot, the man Enzo needs most to back up Mike Hawthorn.

As if Phil Hill's performance wasn't enough, Masten Gregory outdid himself as well, in his first race since being released from hospital after the Silverstone accident. Masten drove Temple Buell's light-weight 250F Maserati in terrific fashion and was holding second place behind Phil Hill for several laps, the Maser and Ferrari in close battle until Masten's physical condition let him down and forced him into the pits, where the car was taken over by none other than Carroll Shelby. Carroll completed the race for an overall fourth.

But there's no getting around it, Tony Brooks has been the sensation of 1958 Grand Prix events, the Monza win being his third Grand Epreuve success this year, giving him an assured third place in the driver's championship. Tony began to go fast at Monza even before official practice began, circulating unofficially on Thursday with a very fast 1'43. Official practice times were a bit of a shambles to put it mildly, the supposedly fastest practice lap by Stirling Moss of 1'40.5 was the subject of considerable doubt as not even the Vanwall timer had caught him at this speed, nor had anyone else in the pits. Nonetheless, officially his time stood, and for the record here are the best times of the 2 days of official practice for the 1958 Italian GP at Monza: Moss (Vanwall) 1'40.5

Brooks (Vanwall) 1'41.4
Hawthorn (Ferrari) 1'41.8
Lewis-Evans (Vanwall) 1'42.4
Gendebien (Ferrari) 1'42.5
Trips (Ferrari) 1'42.6
Hill (Ferrari) 1'42.7
Behra (BRM) 1'43
Schell (BRM) 1'43.2
Bonnier (BRM) 1'44.7
Gregory (Maserati) 1'44.9

From these times you can see how really close the first seven are, the Ferraris especially, Hill's third best time the result

of both Gendebien and Trips getting in more laps than he did, with Mike Hawthorn rightly being the pace setter.

Practice was further enlivened by the appearance of a Vanwall fitted with a Costin-designed plexiglass bubble that completely enclosed the driver except for a 2 inch eye-level slit and a small hole at either side, making it look more like a fugitive from Farnborough than a Formula 1 car. Stirling Moss tried the machine for several practice laps and in his judgment it was a second or two faster down the main straight but since it was an unproven gadget that might jeopardize their chances in the race, it was decided not to use it.

Weather on race day was perfect with a bright Italian sun warming the Monza tarmac. Lord Howe dropped the flag and with a roar the mass of green, red and blue cars were off down the straight and into the Curva Grande. The Vanwalls were first off the mark but Phil Hill set everybody on his ear by coming through from the second row and whizzed by everybody to take the lead. In Lesmo Von Trips ran into the back of Harry Schell's BRM putting both cars into the hedge and Trips into the hospital with light injuries.

Phil led the race for four complete laps, then Stirling Moss jumped in and had a go with Mike Hawthorn—the lead changing very often for the first seventeen laps until the Vanwall's gear box packed up and Moss was out. Another early Vanwall casualty was Stewart Lewis-Evans who found his water temperature reading off scale and had no recourse but to retire. A warped cylinder head was suspect as it had been taken off the night before in a still-warm condition. Tony Brooks was at this time running fifth and then fourth, Hawthorn leading from the 15th lap, on said lap Brooks lying a very unauspicious eighth. But "Il dentista di Londra" as the Milan papers called him, began to move up steadily from there on out.

Jean Behra was doing a fine job until the brake adjustment mechanism on his BRM packed up and both Bourne cars were out. Gendebien had muffed his start in the Formula 1 Ferrari and had been smacked in the rear by Jack Brabham's Cooper, the force bending the Ferrari's de Dion tube so much that he went only a few laps before retiring. Thus only Hill and Hawthorn in Ferraris, Brooks in the Vanwall and Masten Gregory in the Buell Maserati were left in the running for first

(Continued on page 64)

FATE MADE A FEINT or two before finally shaping the destiny of Wilbur Gunn, a native of Lagonda, Ohio.

Born just a century ago, this versatile son of the Gunns first applied his talents to the sewing machine industry, then emigrated to Britain and became an opera singer, eventually fell in thrall to the internal combustion engine and founded a strain of cars that were as English as London Bridge and scarcely less robust.

These Lagondas, as he called them, have distinguished themselves in many and curiously assorted ways during the sixty-one years of the *marque's* lifespan to date. Ranging a possibly unique slew of multiples, there have been Lagondas with one, two, four, six and twelve cylinders, to say nothing of a type that was, from moment to moment, a one- or a two-banger according to which lever you pulled. Lagonda transmissions have rung changes from a single gear to eight forward ratios and four in reverse. There was a period, a full generation before Britain's auto industry became primarily preoccupied with exports, when almost the entire Lagonda output was sold to, of all countries, Russia. Czar Nicholas II himself, according to the early chronicles of the make, "greatly favored" Wilbur's unbreakable bolides, and persons of noble and/or royal birth have shared this predilection for half a century, on and off: for self-drive transportation, the Duke of Edinburgh presently uses a 3 litre Lagonda of the type developed from W. O. Bentley's early postwar designs.

Only three British makes have ever won at Le Mans and Lagonda was one of them; admittedly, though, there was some justification for W. O. Bentley's comment in his autobiography that Lag's lone Sarthe victory, in 1935, was "not very spectacular". (It preceded Mr. Bentley's enlistment by Lagonda). What happened was this:—

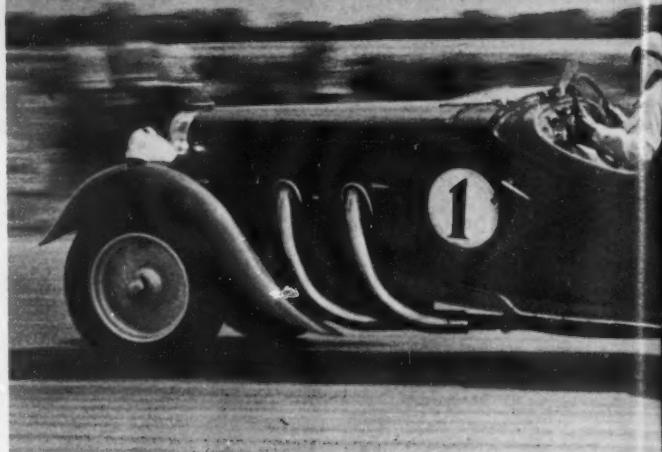
The ultimately successful British car, carrying race number 4 and disguised in an Italian red paint job for some reason best known to entrant Arthur Fox, led briefly during the night but was taken by first one and then another blown 2.3 Alfa. Then the two fastest Alfas folded at intervals and, at 10 o'clock on the Sunday morning, the Lagonda co-drivers, John Hindmarsh and Luis Fontes, headed the race. Tailing them, in mounting arrears, ran the surviving Alfa, shared by two Frenchmen, Helle and Stoffel.

Around mid-afternoon, unknown to anyone except Fontes, who was driving at the time, No. 4's oil pressure practically disappeared. Next, with just twenty minutes left to go, the loudspeakers announced that the gap between the two leaders wasn't *one lap* and 55 seconds, as everybody had figured, but 55 seconds. Fontes, nursing an engine that threatened to weld itself solid at any moment, could only pootle around at sight-seeing speed and run through his repertoire of prayers. Helle spurted and passed one lap later, whereupon the Alfa pit gave him the go-slow. He went slow.

Then, at precisely 3.58 p.m.—two minutes to quitting time—the voice at the mike did an as-you-were and declared Fontes never had lost the lead. By that time, needless to say, there wasn't much Helle could do about it, even if these tidings could have reached him out on the back stretch.

There was one pint of oil left in the Lagonda's sump at the end, and 25 minutes went by before the cruelly overheated engine was clearly visible through the fish-and-chippy miasma rising off it.

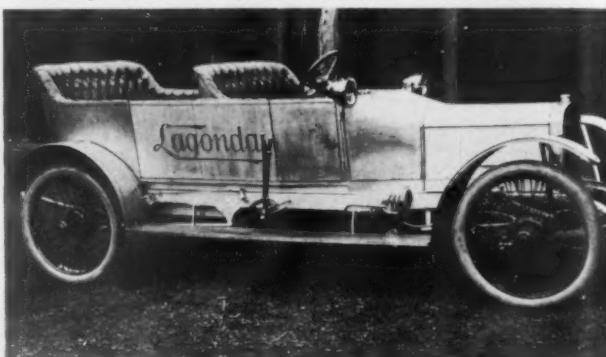
"Unspectacular" as it was, this was nevertheless an authentic Le Mans first. In the twenty-one year interregnum between the Bentley abdication and Jaguar's first *Vingt-Quatre Heures* success in 1951, it was left to Lagonda to redeem the honor of British racing, though not in proper colors. The Fontes-Hindmarsh win, scored on a 4½ liter M45 Rapide model (Meadows pushrod engine, six cylinders, 85½ x 120 mm), broke a spell of Alfa supremacy at Le Mans that had spanned four years in a row, 1931 to '34. Lagonda



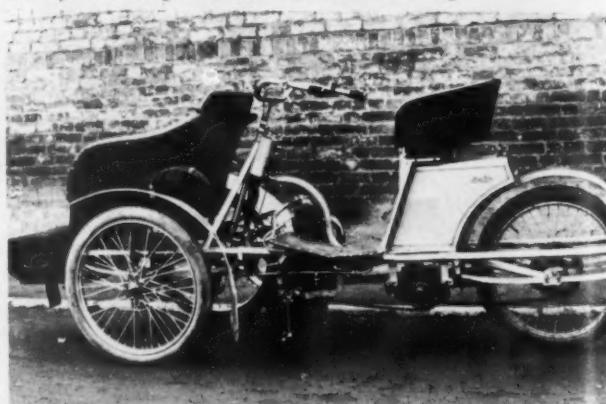
GUNN METAL

By Dennis May

1910 Lagonda Torpedo that won Moscow to St. Petersburg reliability trial, driven by Gunn and Bert Hammond.



One-cylinder Lagonda with handlebar steering.



1931 blown two-litre, photographed at Oulton Park in 1957.





LG45 Rapide, all 4½ litres of it, recognized by external exhaust and duck's rump tail.



If Wilbur Gunn, the Ohio opera singer, hadn't emigrated to England and lost interest in his larynx, there'd never have been a Lagonda.

Luis Fontes won the 1935 Le Mans in a 4½ litre M45, finishing with only a pint of oil in the sump.



enthusiasts don't overemphasize the fact that the big Rapide's speed in '35, 77.85 mph, was slower than the 1931 winning average by the 2.3 Alfa of Earl Howe and the Hon. Brian Lewis.

If Lagonda won without deserving to in 1935, that just straightened the score following some equally undeserved misfortunes at Le Mans in 1928, when they ran a factory team of 2 litre cars. Two of these were leading their class when events took a serio-comic turn at Mulsanne Corner. The foremost Lag, Samuelson's, spun off and climbed a sandbank; propelled by gravity, it then ran backwards onto the course — just in time to do a tail-to-nose shunt with another team Lagonda, Baron d'Erlanger's. The latter putted the Samuelson car right back into the sand, but good; so good it took Samuelson two hours to dig himself out again, at the end of which time he found he'd wrecked his transmission anyway. D'Erlanger's car, with its dumbirons akimbo and the front brakes and shocks both useless, nevertheless rejoined the motor race and went on to finish at better than 65 mph. The Bentley that won outright, with an engine over three times the Lag's displacement, did only 69.11.

This was just one out of dozens of fine competition performances by Lagondas using the DOHC 2 litre engine that most of the marque's fanciers regard as its all-time classic. Designed by a fellow called Davidson, who is understood to be still alive but eludes capture and inevitable canonization by the Lagonda Club, this plant was chiefly distinguished by its unusual top end. The term they used for it was semi-ohc, indicative of the fact that the two chain driven camshafts, although at overhead level, were actually mounted in shoulderlike projections of the cylinder block, and thus stayed undisturbed when the head was lifted. The rest of the valve-gear, including the two rows of rather long-fingered rockers, reposed on the head itself. Bore and stroke was 72 x 120 mm, making the capacity 1945 cc, a figure which, it will be noticed, gave away over 50 cc in the 2 litre class.

Here and now, by this token, we'd better try and unravel a few of Lagonda's designative ambiguities for the bemused layman's benefit, otherwise we will be at cross-purposes in no time. Well now, the original 1945 cc semi-ohc engine, launched in 1925, was termed the 14/60, meaning it was rated at 14 horsepower under the British taxation system and developed 60 bhp. Next, late in 1927, a warmed up edition of the same unit, with compression raised to 6.8/1, was used to power the debutant Speed Model, and the term "2 litre" infiltrated the official Lag lingo for the first time. Thirdly, in the fall of 1932 — and still in the lifetime of the semi-ohc four — the firm introduced a six that was *de facto* a 2 litre (65 x 100 mm = 1991 cc) but which they styled the 16/80. So if you ever find yourself talking Lagondas with a Lagonda man, don't use the phrase 2 litres to describe either the 14/60 (which was no less a 2 litre than the Two Litre) or the 16/80 (which was considerably closer to 2 litres than the Two Litre), otherwise he'll know you're just an ignorant ape.



Start of the 1939 Le Mans, with one of W. O. Bentley's V-12 Lagondas moving out smartly.

Although by no means a lukewarm performer in its day and age, Davidson's 14/60 was always somewhat handicapped by induction passages of a length and deviousness that stood comparison with a souzaphone. For reasons connected with its unique top-end architecture — which it would be hard to elucidate without cutaways — the ingoing charge followed a route that, speaking from memory, went initially *up*, then *in*, then *along*, then *in* some more, finally *up* and *over*, to fall in an exhausted state into a battery of beautifully finished hemispherical heads. These carried two interchangeable valves apiece, angled at 90 deg. to each other, and central spark plugs.

Clean and symmetrical in appearance, this semi-ohc engine was absolutely outstanding for accessibility and ease of servicing. It would have been a waste of time and effort to crane it out of the chassis and put it on the bench for an overhaul because you could get at everything just as easily where it was. The instruction books of the day, incidentally, didn't leave much to the imagination; for example, dealing with how to test the camshaft chains for tension, Lag's contemporary brochurist said you just stuck a finger through a detachable coverplate in the timing chest, "but not be it well understood, while the engine is running".

The 14/60, in 1926, was developing 60 bhp at 4200 rpm, which Lagonda themselves rather optimistically figured would be enough to propel the open four-seat sports tourer of the period at 80 mph. In fact, a *Motor* roadtest put the maximum at 65, and 53 in third. All the semi-ohc cars had a four-speed box, separate from the engine and with right-hand shift.

When the 2 litre Speed Model came along, Lagonda didn't just think it would do eighty, they guaranteed it; but for the *Motor*, "conditions did not make this speed possible during our test". In justice,

though, it should be added that conditions at Le Mans in 1928 evidently made this speed possible, and considerably higher ones too, otherwise Baron d'Erlanger, bereft of the pair of brakes and shocks that mattered most, could never have averaged 65 mph as already related.

The same year, thumbing through the book for any international records within the scope of their unblown 2 litre, the Lagonda management spotted a couple of sitting ducks — the Class E 200 miles and 200 kilometers; and W. M. Couper, their appointed mahout, duly set new figures for these distances, 79.5 and 80.07 mph, which wasn't bad considering the open sports body he used was about as aerodynamically efficient as Anne Hathaway's Cottage. The following summer Couper won the 2 litre class in the Brooklands Double Twelve race, which, even if the drivers and cars did sleep in their beds at half-time, was a Le Mans-lengther in point of duration.

Continuing the development of the 2 litre engine, Lagonda put a lot of extra buns in the oven in 1930 by dint of supercharging. The blowers used were of various makes, Powerplus, Cozette or Zoller, mounted vertically in front of the block and driven at crankshaft speed through bevel gearing. Still peaking at 4200, this example of "unnatural aspiration", as *The Lagonda* magazine has called it, developed 100 horsepower. According to an *Autocar* roadtest, it had a timed maximum of over 88 mph and would pull without snatch as slowly as 6 per hour in top. A latterday writer in *The Lagonda*, viewing the type with an affectionately sardonic eye, allowed that "the charm of driving a blown 2 litre is that the amount of noise and vibration set up at over 3500 rpm is liable to convince the driver his speed is considerably more than indicated". Troubles to which the thing was prone, this authority added, included

seized blowers, cracked heads, cracked exhaust valve seats, seized pistons and various forms of overheating.

A distinguishing feature of the "unnatural" 2 litre was its forward-facing air-scoops sprouting from the tops of the cam-boxes; they may or may not have done any good but they looked well and cost little. Lord de Clifford's blown 2 litre was fourth on general classification in the 1931 Monte Carlo Rally, in spite of being involved in a six-car shunt on the road itinerary. Weighing as it did, around a ton and a half, a blown Lag was well able to defend itself against five other cars.

Wilbur Gunn's first extra-operatic enterprise in Britain was to build a river yacht. He made a bet it would beat the fastest speed ever hit on the Thames, and it did. Whether he called it after his Ohio birthplace is not recorded, but his first wheeled vehicle, a motorcycle, certainly bore the name Lagonda. Lagonda bikes, made at Staines, on the banks of the Thames near London, where the cars of this marque were to be constructed until David Brown's acquisition of the firm after World War II, went on the market in 1898. In '02 Gunn switched to a species of threewheeler called a forecar, handlebar steered and powered by a single cylinder air-cooled engine. Through various stages of development the forecar advanced to wheel steering and the unique two-cylinder powerplant which, as recalled earlier, "gave the driver freedom to select the front cylinder, the rear cylinder, or both". With both in the act, vibration was terrible.

The first conventional automobiles bearing the Lagonda name were the Torpedoes, a four and a six sharing the same cylinder dimensions (90 x 120 mm) and launched in 1907 or '08. It was these that Czar Nicholas "greatly favored", possibly on the strength of a resounding victory

(Continued on page 48)

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DEALERS INQUIRE

Lagonda

(Continued from page 46)

won by co-drivers Wilbur Gunn and Bert Hammond in the Moscow-St. Petersburg Reliability Trial of 1910. Itinerary for this contest was 3000 versts in length and as rough as hell. Organizers were the Russian Government and, in keeping with the Romanoff brand of absolutism, a cavalry officer wearing a sword and spurs was assigned to observer duties in each competing car.

Shortly before the Kaiser war, the bigish Torpedoes were replaced by a bull-nosed light car known as the 11.1 with 67 x 70 millimeter cylinders, superimposed inlet valves and a rudimentary form of stressed skin construction. After the war the 11.1 was bored and stroked to 69 x 95 (making it 11.9 by English Treasury rating), had its skin unstressed and its bullnose flattened. A single-seat version, specially built for Brooklands, lapped the English track at a surprising 88 mph in 1922 or thereabouts. A couple of years later the 11.9 was superseded by a bigger and heavier car called the 12/24.

Gunn meanwhile had died in 1920 and was laid to rest at Englefield Green, a village near Staines which gained a transient fame not long ago as the British *pied-a-terre* of the cultured and shapely Mrs. Arthur Miller. All that seems to be generally known about Wilbur Gunn is that he was a very correct and dapper dresser—more English than the English, sartorially—and something of a martinet. His neglected grave was recently rediscovered by a pilgrim from the Lagonda Club, and another L. C. member, it is pleasant to record, donated a sum to the Englefield Green parish funds to provide for the tomb's proper maintenance in perpetuity.

During a visit to the U.S. a few years ago, incidentally, a Lagonda Club man made extensive sorties and enquiries in Ohio in search of Gunn's birthplace. Lagonda itself, alas, seemed to have vanished off the map.

In the interwar years, Lags were made in the profusion of overlapping types that was typical of British car manufacturers' policy during this era. In 1934, for instance, reading from bottom to top of the displacement scale, the range comprised: 1) the 1104 cc Rapier, newborn the previous September, with authentic DOHC; 2) the six cylinder 16/80, a 2 litre by pipette measurement but not, at your peril, to be called the Two Litre; 3) the 3 litre six, with five production seasons behind it (with a capacity of 3013.49 cc, this one was a whisker over 3 litres, but never mind—the Three Litre is what it was called); 4) a new 3 1/2 litre six; 5) a 4 1/2 litre six in standard and Rapide editions.

Partly no doubt as a result of this uneconomic doubling up on models, Lagonda became afflicted with what Tennyson called "the eternal want of pence", and in the spring of 1935 the company's creditors appointed a receiver. The victory at Le Mans that year gave business a sorely needed fillip and lifted the firm's finances a millimeter or two off bdc, but there was well merited rejoicing when a millionaire businessman, one Alan Good, stepped in

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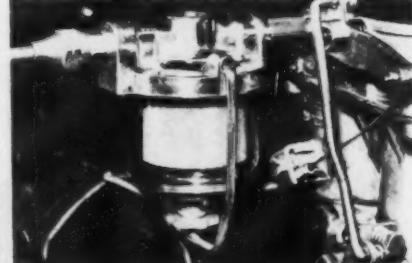
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and acquired the name and assets. Good was a short jump ahead of Rolls Royce, who, after digesting Bentley, were avid to paste another famous monogram in their album.

We don't have space to dissect the design and admire the exploits of all the types of subtypes uttered by the Staines factory in the 30s, but we mustn't turn this page without a glance at the 3 litre Selector Special. Fitted with a German Maybach preselector gearbox, this awe-inspiring production gave a total of twelve ratios, eight forward and four backwards. The eight forward speeds came in two families of four each, controlled by separate levers. For practical purposes and under all normal conditions you operated the thing as a five-speeder, because transfer shifts from low range to high range could only be made between low-low and high-low. The changes themselves were effected by over-running clutches deriving power from pistons actuated by engine suction. Top gears in high and low ranges were respectively 3.66 and 6.1/1, though considering the 3 litre Special engine must have had around 90 bhp on tap, it's hard to imagine conditions justifying a 6.1/1 top. Prospective buyers must have wondered the same way, because they mostly stayed prospective. The Selector Special had a short but not very merry life.

It was in the fall of 1933 that Lagonda really entered the battleship class, introducing their first 4½ litre — the biggest engine and the heaviest car they'd made to date — thereby filling the vacuum left by the demise of the old rumbleguts Bentley. Like all other Lag sixes before it, the 4½ litre M45 engine was an extremely robust but otherwise undistinguished pushrodder with vertical valves. Chassiswise there were no startling features either, except for the enormous and extremely powerful brakes, servo assisted and endowed with heavily ribbed drums. Lagonda, right back since the days of Davidson's delectable 14/60, had always made something of a specialty of stopping power; the 16/40 itself, and its 2 litre kin, had the complex but effective Rubery braking system, with 14 in. drums and operation by a hookup of cables, sprockets (7 all told) and lengths of roller chain. In the course of official tests of these grapplers, carried out at Brooklands in 1927, the RAC's engineers found the powers of arrest so stunning that ordinary measuring methods had to be abandoned in favor of a special pistol that fired a charge of colored dye at the ground when you hit the pedal. A press tester of a 1931 2 litre recorded stops in 29 feet from 30 mph, and to this day I've never experienced brakes to beat the Girling's on a Rapier I ran in 1934.

Perhaps the greatest race any Lagonda ever contested, anywhere, was Brian Lewis's fight with E. R. Hall's 3½ litre Bentley for second place in the 1934 Tourist Trophy. The *Motor*, which wasn't overlooking Nuvolari's screaming battle with Hugh Hamilton in the previous year's race of the series, described it as "the finest duel that has ever been seen in the T. T.". Lewis's car, prototype for

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(Continued on Following Page)

Lagonda

(Continued from Preceding Page)

what was to become the 4½ Rapide, weighed heavier than the more delicately built RR product, consequently was harder on tires. When Lewis pitted to replace a set of treadless covers, Hall kept going and took second place at the fastest time of the day.

The V12 in its brisker form, with the shorter of the two available frames, was the fastest closed or convertible car on the British market in the immediate pre-war period. At Brooklands in 1938, Earl Howe drove a standard short-chassis V12 sedan for an hour at an average of 101.5 mph, which included a 2½ minute stop for a wheel change; this, considering the silence, comfort and ease of control enjoyed by the earl, compared well with the 104.4 mph that had been maintained for an hour at Brooklands the previous year by one of the LG45 Rapides prepared by the factory for the abortive 1936 Le Mans.

Fast as it was — about 112 mph under neutral conditions — it couldn't be said the V12 had demon dig. It would go from zero to 50 in 10 seconds. On the other hand, the V12's acceleration probably wasn't any worse than that of the contemporary 4½ litre Bentley, which, in spite of having only half as many cylinders as the lordliest Lag, cost the same. How it must have burned. Walter Owen Bentley to think what the competition's customers were having to pay for the name Bentley!

Partly, of course, excess weight was to blame for the twelve's inertia, as an example of which may be cited the *seventeen pounds* they took off the steering box alone when preparing the two special two-seat V12s that ran at Le Mans in 1939. Other deviations from stock included a lightened frame, raised compression ratio, two extra SU carbs (making four all told, fully downdraft between the cylinder blocks), improved exhaust manifolding, reduced bore intake passages, modified valve timing. Power output rose from 175 bhp to 220 at nearly 5000 rpm. Distinctive in appearance, the cars had very low radiators, tails offset sharply to the driver's side, outrigger mudguards of aerofoil shape and outside exhaust systems straggling varicosely along both flanks.

It was only under protest that W. O. Bentley had agreed to ready these V12s for Le Mans, contending that the time at his disposal, less than six months, was quite inadequate. But to Alan Good, in the way that seems to come naturally to millionaires, any contra-argument was inaudible, so in the end the project went underway, subject to a proviso that the cars should be controlled during the race to a speed one mph faster than the 1938 winners'.

The completion of the Le Mans cars shaved the deadline so closely that one of them never ran on pavement until it was driven to the port for shipment across to France. Nonetheless, W. O. and his men had done a nice job. The two Lag partnerships, Arthur Dobson with



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Charlie Brackenbury on one car, Lords Selsdon and Waleran on the other, maintained their preplanned 83-plus schedule as easy as patatecake, and, aided by a high rate of mechanical mortality among the Delages, Delahayes and Alfes, placed third and fourth respectively.

Both the Le Mans V12s survive and have good homes. One is in England and belongs to a devotee called Lord O'Neill; the other, one of about fifty Lags running on U.S. plates, is the property of Robert T. Crane, of Sparta, N. J., secretary of the Lagonda Club's American cell. Crane has a V12 convertible coupé as well. His Le Mans car's original engine unfortunately suffered a major blowup before it came into his possession and was replaced by a Chrysler V8.

In all, around 200 V12s were built. As a type, this was something less than a great car. It wasn't particularly reliable, under-hood accessibility was atrocious, and the thing was far too heavy. The short-chassis sedan weighed over 4400 pounds. Based on box section members no less than 8 inches deep, the chassis itself accounted for about 3250 pounds. The engine, nevertheless, with one ohc to each bank, rigid main structure and very small cylinders, was turbine-smooth and extremely effortless throughout its farflung rev range.

For a full decade the Lagonda trend was towards bigger and more luxurious vehicles, larger displacements and multiplication of cylinders. Then, late in 1933, concurrent with the introduction of the first 4½ litre, the firm became unexpectedly reenamored of an old love — the light car, or one that anyway came within the British engine-capacity definition of a light car. This was the 1104 cc Rapier, which certainly did and does rate the adjective great. Designed from scratch by an exceptionally gifted automobile engineer, the late Tim Ashcroft, the 62.5 x 90 mm Rapier engine was a masterpiece — outstanding in performance for its date, virtually unbreakable, a model of neatness. Malcolm Campbell, who was no fool in engineering matters, bought him a baby Lag on sight, and Tazio Nuvolari's verdict after driving one was "it went like a little Alfa".

There was nothing "semi" about the Rapier's dual o.h. camshafts: they were uncompromisingly overhead, driven by chain at the front end and operating fully inclined valves through rockers. Journal and crankpin sizes of the drop-forged, four-bearing crankshaft were at least up to contemporary 1½ litre standards, and the con rods, viewed flat-on, looked practically isosceles. Outputs in standard form are hard to ascertain but an *Autocar* roadtest published in 1934 gave the mean maximum speed of an open four-seater, two up, as 75 mph. A later supercharged version, with only a 7 psi assist, would do a genuine ninety.

Ashcroft originally had planned a light alloy block with dry liners for the Rapier powerplant, but the costing figures scared Lagonda and they made him use iron. The result was an engine weighing almost 500 pounds, which was a lot for an eleven-hundred. However, by discountenancing "trouble metal", as aluminum alloys were christened by a motorcycle development engineer I once knew, the firm may have

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Lagonda

(Continued from page 51)

fortuitously paved the way for the long-term development of this motor to the peaks it has since reached. Today, 27 years after Ashcroft started work forging his bright blade, at least one Rapier is operating successfully in English sprints and hillclimbs. Downton converted the Austin Healey Sprite, the car in question stoically withstands the internal pressures resulting from a 30 psi supercharge in conjunction with a 13½/1 compression ratio. Its owner-driver, Daniel Richmond of Downton Engineering Works, often used to beat C-Jaguars in circuit races a few years ago, making full use of a 130-mph maximum and the exceptional roadholding and braking that came with the Rapier chassis.

The sovereign merit of a car, viewed historically, is assessable by the devotion it inspires in connoisseurs in the years and decades that follow its production life time. By this yardstick the Lagonda products of yesteryear easily bear comparison with their old rivals, the Bentley-hallmarked Bentleys. Taking an individual case to prove our generalization, let's look briefly at the story of a 4½ litre six that a fellow named Howarth raced with great effect in English club events.

Starting point for the Howarth exercise was a 1935 M45 sedan. First, he juked the body, designed and built a sports two-seater replacement with the hood line lowered four inches. Next, because the manufacturers' blueprints were no longer available and he wanted to be able to see the job in 2-D, he had a complete new set of chassis drawings made. (Chassis, in this context, includes the engine and transmission system.) Then, after a cent-percent teardown, the car was rebuilt with meticulous care, compression was raised to 10/1 and, *inter alia*, the whole crankcase exterior was mottled finished.

These operations, ambitious as they were, didn't fully assuage Howarth's desire for perfection. But he didn't have long to wait for an excuse to begin all over again. During practice for a water-front sprint, his wife lost control of the Lag and it fell 28 feet onto a rocky beach, landing upside down and smashing everything except the engine, gearbox and back axle beyond redemption. So this time (Mrs. H. by the way, had survived) he started with a clean piece of paper on the drawingboard, evolving an original crab-track chassis with independent front springing, adding six Amal carbs in place of the two broken SU's, and fitting an Armstrong Siddeley preselector gearbox.

Lagonda, superbly confident in the strength and durability of their road-going dreadnaughts, used to issue a nine-year guarantee with every car they built. If the Howarth wreck had happened a few years earlier it would have been interesting to discover whether this record breaking warranty included wives diving off little cliffs onto beaches.

Dennis May.

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Hawthorn

(Continued from page 19)

The old cars just weren't up to the best of Maserati and Vanwall. At the Grand Prix of Rheims for instance, the Ferraris could not even equal their times of a year before. "That's what I call progress", Peter Collins grumbled. "A year of improvement and we're two seconds slower". He grabbed a paperback Western and retired to his station wagon. Mike agreed, unfolding out of his car: "As far as I'm concerned, they can burn them", and he grabbed another Western and joined Peter.

The high point of that year was a defeat. It was at the Nürburgring. Collins and Hawthorn were well in the lead playing at racing after Fangio had stopped his Maserati at the pits and then, suddenly, they saw from the pit signals that the Old Man was back in the race and he wasn't dawdling. But try as they might, Fangio kept cutting great chunks from their lead, and great chunks from the record, too. Fangio, driving the race of his career, charged on and caught the two Ferraris and beat Hawthorn across the line by three seconds, perhaps, in his mind, evening the score of a game begun several years earlier at Rheims.

In Mike's championship year of 1958, Portago's charge of "erratic" could scarcely hold. In fact, Mike has been dully consistent if anything. He scored points in all the Grande Epreuves entered except one (the G.P. of Germany). He finished all but two (Germany and Monaco). He had fastest lap four times. He won only one race (France) and he was second five times. And it was not an easy year to be consistent. Mike witnessed the fatal accidents of two teammates—Luigi Musso and his "mon ami mate", Peter Collins.

Compare Mike's record with Stirling's. Moss finished only five races, but he won four of them and was second once. He, too, had fastest lap four times. With the best six races counting, Mike put together a score of 42. Stirling mustered 41.

Apart from the fact that Stirling just plain did not finish enough races—and sometimes it was his fault and sometimes it was the car's—the fastest laps told the story. If any one "fast lap" in particular, it has to be the one at Portugal.

Moss won Portugal. Hawthorn was second and had the fastest lap. Moss, during the race, thought that he had the fastest lap and a misunderstanding of his signals from the pits might have kept him from it. There was a sign shown to him that said: "Haw. Rec.". It meant Hawthorn just made a record lap. Moss read it: "Haw. Reg." which meant Mike was "regular", not gaining time, not losing it. If Stirling had not misunderstood the sign, and if he had made fastest lap and if—. But as they say over there, with "if" you can put Paris in a bottle".

And that sign, "Haw. Reg.", that Stirling thought he saw. That was the answer to the entire season. Hawthorn was regular. And Portago's "erratic" driver who "seldom finishes", had finished, and finished, and finished. And finally he finished as the Champion of the World.

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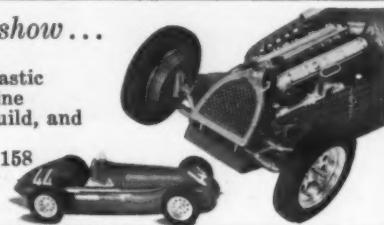
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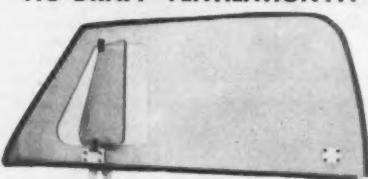
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the car tends to lean considerably when cornering hard. Vision is excellent, except for the too thick windshield corner post. Sideways and rearwards it is outstanding. All the windows roll completely down and out of sight. The well-located instruments and switches are especially good, too. Our major beef with the car concerns the shift lever and its pattern. The lever itself is awkward to use and the pattern is completely backwards from a conventional "H" type of gate. As more miles are added, and one lives with the car for a longer period, it is something to which one becomes accustomed. Column gear changes are the bane of the sports car driver and the DKW is no exception, although the fully synchronized gear box seems rugged enough to stand any and all punishment.

We were unable to try an Auto Union 1000 fitted with the "Saxomat" automatic clutch but find it difficult to justify this available extra on such a small car. A controllable free-wheeling device is standard on all Auto Union passenger cars. We used it extensively for Autobahn driving, but once off these freeways, we preferred to leave the free-wheeling locked out, thus gaining the benefit of engine braking, slight though it is.

Two-stroke motoring is not as difficult or troublesome as it might seem. SAE 40 weight oil is mixed with the fuel at a ratio of 1 to 40 (one quart to ten gallons). The DKW's built-in mixer blends the fuel and oil provided the oil is put in first. It is difficult to say "fill it up" to the gasoline attendant, for one has to figure rather accurately how many gallons it will take, and then choose a lower round number so that the correct oil-fuel ratio will be maintained. We'd recommend that every DKW owner carry a few cans of oil in his trunk as well as a pint can with a screw-top.

In Europe, modified DKW's are the rule rather than the exception, with the factory as well as its continental distributors aiding and abetting DKW owners to get more out of their cars. Here is what the Swiss distributor does to his customer's cars to make them go better.

First the carburetion is altered with bigger jets, (main jet—165, air correction—230, venturi—31.) A sports air cleaner is installed as well. Then, the transmission oil is thinned out from 90 SAE down to 40 SAE, and less of it. The oil/gasoline ratio is changed, running on regular, 1:43, plus six or seven ounces per tankful of Redex. The wheel bearings are set to run in a mixture of oil with grease rather than the grease alone. Spark plugs stay the same, but on Swiss cars the distributor happily installs Michelin X tires, pressures raised to 28 psi. A performance increase of 10% can easily be expected. The greatest increase is in the higher speed ranges and an 85 mph maximum should certainly be possible. There's no doubt but the two-stroke engine is most happy in modified form.

One cannot help but be impressed with the car's performance in relation to its engine size. It is well appointed inside and roomy enough for the whole family. These attributes coupled with its excellent handling and ruggedness are the outstanding impressions left with us. It is a very different car, but prospective buyers should not shy away from the fact that it is a two-stroke and has front wheel drive. The former simplifies engine repairs and certainly eliminates oil changes! The fwd will pay noticeable dividends if you live in a snow area during the winter or ever have traction problems since you can aim your thrust.

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Jesse Alexander



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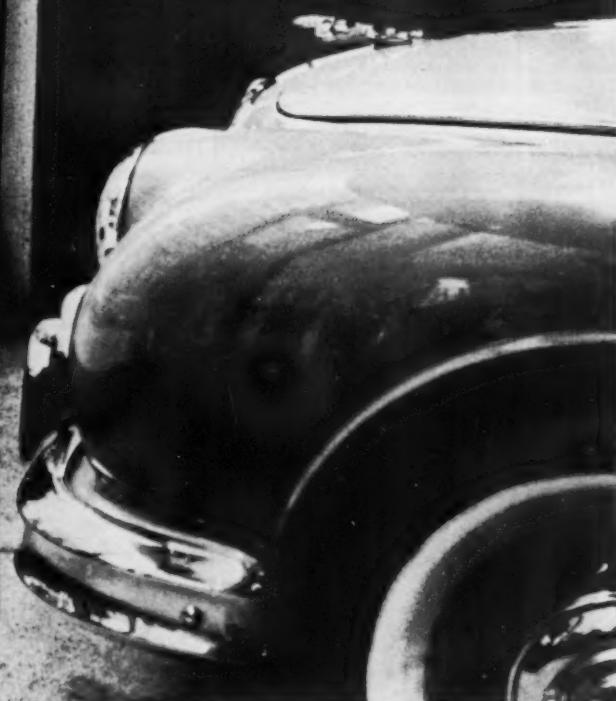
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MEADOWDALE

(Continued from page 31)

to make Meadowdale a popular spectator thrill show, the course is horrible from the spectators' point of view. The effort was entirely unsuccessful. Few circuits offer such poor viewing vantage points. Few circuits have such limited space where cars in action for any appreciable distance can be watched and analysed by many people at once. Few circuits offer such pitiful interior bottlenecks for spectator traffic. And certainly no event in the Midwest has resulted in as gigantic an all-day traffic jam on state, county and town roads as Meadowdale's opening did.

The most striking result of the philosophy of "spectators first" is the total lack of escape roads or broad shoulder skid areas where cars in trouble can go spin themselves to a stop. There are none. Instead, dirt embankments of varying heights just off the six-foot shoulders are characteristic of the circuit throughout its length. Such design is featured on the outside of most corners. Where such design is missing, concrete slab retaining walls cleverly bash a sliding car back onto the course. The dirt embankments continue upwards to levels from which spectators look down. The effect is of cars passing by in miniature ravines.

The embankments, it was clear on the debut weekend, leave little margin for error in handling a "loose" car. The circuit is entirely unforgiving. A simple spin is nearly impossible. At the least, a car bangs into the dirt and is damaged to howls from the crowd. At the worst, it is flipped. This design feature was the direct cause of the numerous flips during the opening meet, including the fatal one.

The Meadowdale misadventure — many think it is the most serious blow in years to sports cars — began weeks before the first meet. The flavor of the promoter's publicity was a giveaway as to what was coming. The majority of the sponsoring club, Chicago Region of the S.C.C.A., was all dewy-eyed, innocent and gloating with hot anticipation over the prospect of the handy, new playground prior to the event. The most charitable view is that they had a mental lapse. No group has ever been sorrier of its lapse than the sponsoring club.

The pre-event period was built-up by the promoters in a press agent's field day during which almost no holds were barred. Hundreds of radio and TV commercials were backed up by press releases, newspaper supplements, and full-color weekend newspaper magazine features. Fangio was actually invoked in a strident radio commercial voice with the implication that he would be present. Numerous other top drivers were falsely claimed as entrants.

Blatant misrepresentations were the rule, not the exceptions, in publicity concerning the course. The main straight is still being called "the longest straightaway in the world" at 6,000 feet. It is not 6,000 feet. It is short of 4,000 feet and neither dimension makes it even close to being the longest straightaway in the world.

The so-called "Monza banking" was and is assiduously puffed by the description,

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"Cars will be forced to hit speeds of 140 miles per hour to properly negotiate this turn." No one came close to such a speed and no one needs to. Not only did all the big cars go around it in third gear, many found it so rough they stayed down off the banking. As to the severity of the camber and "you'll fall off it if you're not at speed," many of us have proceeded around at the top at 25 miles per hour and many would be perfectly willing to park their cars at the upper edge and walk away from them.

Misrepresentations about the pit facilities were equally hypocritical. Up to the last, it was stated that each pit would have an individual fuel outlet. This one didn't even come close to happening when the insurance company took one look at the wooden grandstand over the pits. "Private quarters and rest rooms for drivers" was another claim that no one ever saw.

The claimed degree of banking of the "Monza wall" was typical of the "number's game" played by the publicists to dupe the public. Everything from 60 degrees to 45 degrees was claimed depending on what press release you read.

The length of the course itself was the phoniest card in the deck. Claims drifted down from 4.4 miles to 4.2, 3.8, 3.7, 3.5 and finally to the currently claimed 3.3. For the record, it is 3.27 miles around.

As to the claims concerning the cost of the enterprise, \$3-million is the handy round number resorted to by the press agents and their local sycophants. Again for the record, it appears that approximately \$346,000 has been expended on Meadowdale Raceways.

The juiciest misrepresentation by far, however, concerns attendance at the opening weekend. This is the most important figure of all in many ways. On the basis of what the Joneses do, you may do likewise; and you will pay admission fees to do it. Also, if you are a promoter trying to push your course as a Championship site, you pull out stunning attendance figures. Generally speaking, you swing much weight in business associations, including publicity transactions, if you quote spectacular attendance as an argument. Meadowdale was true to its type.

For the Saturday practice and time trials an attendance of 48,632 was claimed. For the five Sunday races, the attendance claim was "more than 151,000." The absurdity of these figures is apparent.

Let us say four people to a car, thirty ticket takers at gates, and a minute to check a car all the way through. Even with these ridiculously generous terms it would take 27 hours just to get the claimed crowd into the area, a neat trick on a Saturday and a Sunday morning. Possibly many parachuted in and we failed to notice.

It has all been a rude shock to the sponsors, the drivers and the ordinary enthusiast-supporters who have nurtured the sport for years in the Middle West. All had their first taste of big-time professional promotion with no holds barred and they were appalled. The capable Chicago Region people are regretful they ever strayed into the bad lands. The comparatively sheltered world of Midwest sports car racing has been shattered and endangered by the newcomer and will never be the same. It is not far-fetched to speculate that

(Continued on page 58)



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MEADOWDALE
(Continued from page 57)

American competition racing in general is bearing an open sore called Meadowdale.

The commercial "tie-ins," the manipulation of concessions, the kind of crowd, the scorn for safety, the PA system advertisements, the newspaper sensationalism resulting from weeks of promotion were new and unwelcome phenomena. All this created a carnival atmosphere not only in the opinion of the purists but of the unaffiliated enthusiasts. The drivers felt they were bought, paid for and expected to produce crash heroics. Never before had the sponsors run an event they felt was completely out-of-hand.

After the event, Chicago radio listeners were treated to some public mud-slinging during the course of which the driver who died was accused by the promoter's publicist of a "criminal mistake," apparently because he survived the inaugural of the new course by dying. The outraged explosion that followed reached far beyond southwestern Connecticut with the sponsors swearing "Never again!" and "Sports cars have been set back five years!"

These local enthusiasts may never be seen at Meadowdale again. But a regional and amateur viewpoint is not broad enough when contemplating Meadowdale Raceways. A moral viewpoint is essential because a lot of nice guys are going to be killed at Meadowdale Raceways unless something is done about it. The course is difficult to modify and make safe. The greed behind the layout has brought the outside of the circuit to the edge of the property lines at most extremes. Moving back the spectator fences will make it miserably difficult to see any of the course well from any point because of the bulldozed topography of the layout. And if they cannot see, people will not come.

With it all, Meadowdale must be viewed as it is now and as an entity. It is indeed an entity: it is a big, rich fact—accessible to a major population center. Few other American circuits offer this. The men behind it include a real estate developer, an appliance dealer, a publicist, and a department store owner. No doubt the laymen in Chicago, stuffed with Meadowdale publicity, will be offered a glorious opportunity to share in the gold mine by buying stock in the enterprise. This figured from the first as a neat way for the speculators to get home free.

The people behind Meadowdale demonstrate every intention of going the limit with their guess that only the surface has been scratched in exploiting the public appetite for automobile racing. And exploitation will be with the set of rules they invented. Their plans have room for sports cars, stock cars, Indy cars, and Formula 1—amateur and professional—and not on an oval. While it may be hard for experienced observers to believe it can happen—and in Chicago, of all places—the group is a tough one to bet against. And the mayhem should be something to behold.

The attitude of the promoters after the incredible inaugural meet? Inquiry reveals no major changes of any kind contemplated at Meadowdale Raceways.

Shall they have their way?

Dick van der feen

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ART CENTER SCHOOL

MOROCCO

(Continued from page 21)

braking power. On the second lap Phil went up an escape road, though he quickly rejoined the race.

By seven laps, Phil Hill was second again, driving brilliantly; but the gap between him and Moss never grew less than seven seconds.

Tony Brooks began putting the pressure on Mike Hawthorn's third place at fifteen laps. He actually pushed his way in front of the Ferrari, threatening Mike's championship hopes in favor of Stirling's, but then a piston blew and he retired, spinning off in the process. This left only Moss and Lewis-Evans in Vandervell's machines but before long the latter spun off in his, catching fire. The unlucky driver received very serious burns from which he later died.

The BRMs were led, surprisingly, by Joakim Bonnier, the bearded Swede who has suddenly decided that he *can* go fast when he wants to. Behra could not catch him in the other BRM and as a result pulled into the pits to give up — nothing obviously wrong with the car other than the fact that Behra either couldn't or wouldn't make it go. This is especially surprising in view of his excellent practice times.

By half distance it was evident that Moss was going to win the race if the car lasted. Hill continued to press him, but finally got the signal from team manager Tavoni to let Mike take second place.

Phil didn't understand the signal completely until Tavoni got down on his knees in front of the Ferrari pit! The next lap around the Ferrari order was reversed and the race settled down to a procession: Moss winning by over a minute from the nose-to-tail Ferraris.

The Moroccan Grand Prix is now of international significance. Ain Diab is a fast driver's circuit where the top boys go and the second string drivers really get left behind. We'll remember it this year for not only being the deciding event in the world championship, but for Phil Hill's fourth brilliant drive this year. Phil has come into his own as a Ferrari team driver now and from here on up to the top, the way is clear. It's just where he wants to go.

Jesse Alexander

Results: Grand Prix du Maroc

Stirling Moss Vanwall 2:09'15.1"

average speed: 115.96 mph

Mike Hawthorn Ferrari 2:10'39.8"

Phil Hill Ferrari 2:10'40.6"

Joakim Bonnier BRM 2:11'01.8"

Harry Schell BRM 2:11'48.8"

Masten Gregory Maserati 1 lap behind

Roy Salvadori Cooper-Climax 2 laps behind

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Fastest lap: Stirling Moss 2'22.5"



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Chev 315

(Continued from page 29)

Our test car's acceleration was helped, of course, by its 4.11 axle ratio. But even quicker times can be obtained with the optional 4.56 rear end gears. The test car was not fitted with a limited slip differential and this, too, would make for quicker times. Also, our speed runs were made with open windows, it being far too hot a day to run with them closed; this extra drag made up for the open header plugs, no doubt. With the 4.11 ratio the thrust is extremely constant and powerful out to about 95 mph. Then it begins to fall off and becomes much weaker at about 100. At 56 or 5700 rpm it is absolutely all done and cannot be revved beyond that in any gear. Steiner does all his speed shifting at 5000.

For sheer straightaway performance the car is exhilarating, thrilling and amazing to drive. How about the other vital qualities?

The sound of this machine, as we took off, was astonishing. You may remember the sounds of various V8-engined Allards of a few years back. Even at peak revs they just burbled along, sounding lazy and effortless. Not the Chev 315. It comes on right now with that booming, hard-slammimg thunder that we've learned to associate with wild, full-race V8's at the drags and at Bonneville. It sounds precisely like what it is: a legitimate racing engine.

Its acceleration, for what some people will call a big barge, is appalling. It hauls its freight with a continuous swift surge that is altered only when the high-speed carbs cut in. When they do the thrust is markedly increased and the carbs moan like a Roots blower in rut. It's a most unprecedented feeling to be in a big, soft-sprung Detroiter that rushes out to 100 mph like Col. Stapp's rocket sled.

Later I called Frank Milne, racing expert of Harry Mann Chevrolet, the big Southern California Corvette specialist. "What did you get for zero to 60?" he asked. "Seven point two," I told him. Milne intoned, "My God!" and was silent for a long moment.

I read off the rest of our times to him. "Now I begin to understand," he said. "There are darned few of those 315's around yet and the one that I was hoping to run tests on was bought right out from under me. Since then the owner keeps telling me about waxing stock Corvettes consistently at the drag strips and turning elapsed times in the high fourteens. I didn't believe him. Now I guess I'd better."

I checked with Los Angeles' Courtesy Chevrolet, where Steiner had bought his car, to verify what was in it and what it cost. "Is it the same as Chevrolet's Police Special?" I asked. Courtesy's Charles McClure replied, "The Police Special has everything Ron's car has, plus an even heavier clutch, stiffer suspension, ceramic brakes and a bigger gas tank. I drove one recently and it really made me a believer. Lord help anybody who tries to run from a cop in a Chev these days."

Its handling is about as good as it has to be for a touring machine. On the straight it tracks very true with the power turned on. At cruise, under neutral acceleration, it wanders slightly and some jiggling of the wheel is necessary to keep it on course.

In cornering it is incomparably better than the '57 Chev while still retaining a very buoyant ride. It understeers just a little and must be warped into the turns—56 per cent of its weight is on the front wheels. The rear lets go very slowly and only does so under hard provocation. Steiner did the cornering for our test curve photos and, although I doubt that Dick Tracy would have been brave enough to do it one mph faster, the car hewed to a tight line with almost no sliding . . . and with only 26 psi in the tires. This is stock Chev suspension and, good as it is, it does not represent Detroit's best. Both front and rear wheels hop unpleasantly when bumps are encountered on a curve.

The recirculating ball steering is on the heavy side but its responsiveness and lack of backlash are good. The heavy duty clutch has a competition feel. It requires more pedal pressure than most Detroit-conditioned drivers will want to put up with but the smoothness and positiveness of its bite are very satisfying. The column shift on our test car worked very smoothly but it was essential when at a standstill to engage a synchronized gear before attempting to engage low gear to avoid a fierce clashing.

The engine is surprisingly smooth and quiet but is the worst in my experience for running-on, meaning for it to continue "running" after being switched off, due to hot spots in the combustion chamber. To keep it from igniting spontaneously for long periods one of several techniques may be used. One is to put it in gear, say in high, and let the clutch out for an instant as the switch is turned off; this snubs the flywheel to a stop. The other is to open the throttle at the instant of switching off. The dousing of raw fuel seems to cool off the hot spots. As for gas mileage Steiner says, "If you play around with it, which is why you buy such a car, you get about six mpg. If you drive very conservatively you can get around 12." There are high-performance European cars of smaller displacement that are about as thirsty.

Its stock Chev brakes are miserable. One hard stop from 80 or so and you're all through or, as Steiner puts it ominously, "You're dead!" But anyone who is seriously concerned with brakes can do a lot to a Chev. Says Milne, "If I had such a car I'd do what Duntov advised us to recommend to owners of Super Sports Corvettes who plan to run them on the streets. That is, switch to 15 in. wheels with Chev racing drums. Use Chev linings on the rear but substitute the wider Pontiac or Olds shoes at the front. It's a really effective combination."

This car is an absolute ball to drive. Like any very hot car, it should be handled with respect, caution and one's very best judgment at all times. Maybe it isn't a Ferrari Superfast. With 4.11 gears it peaks at only 107 mph (in 21 seconds) and with the highest cogs available will only do about 130. But think of the \$13,400 you save.

Griff Borgeson

Technical Editor's Note:

Other keen drivers who want to go superfast but don't have the extra 13,400 dollars will be able to get all the same options Griff has mentioned above plus one more, the four-speed gearbox with synchromesh on all forward gears. Floor shift, too. The synchro low should eliminate the difficulty mentioned of slipping into first at a traffic light despite the 1200 rpm idle while all will welcome that missing gear between first and second. Manufacturer's Suggested Retail Delivered Price is \$188.30 extra (for comparison, Powerglide is \$199.10 and Turboglide \$242.10 extra). It's available only with the two V-8s. The engine on Rod Steiner's car is now called the Special Super Turbo-Thrust V-8 (!); it's still rated at 315 but factory hands whisper knowingly of 320 and occasionally 325 hp. It costs \$195.85 extra over the 283 cu in "Turbo-Fire" V-8; about two bucks per extra horsepower.

The Moraine sintered metallic brake linings are now to be available only on Corvettes and on "Law Enforcement" cars. Apparently they do still give slight trouble with grabbing when cold. GM management feels that therefore they should only be in the hands of drivers who know how to cope with them. The logic here certainly escapes me.

Choosing the Corvette over one of the passenger cars certainly doesn't make a Fangio out of anyone and on the other hand, why not extend this same line of thought to the various high performance

kits? No, on second thought, don't. SCI urges every potential customer for a power-pack Chevy to make an old college try for the sintered linings; if enough people raise their voices, we'll be heard. Just to make it easier, the Chevy part number for the Moraine kit is 375994.

We drove an Impala ('58) so equipped recently; it really had every conceivable option for performance improvement although the interior and exterior looked stock. Actually, the latter wasn't. The bumpers, along with a lot of the less useful trim, were also made of aluminum! Pretty sneaky, this, and never likely to see the neon of a dealer's show-room. With a 3.70 Positraction rear end, "export" suspension all around and weighing, despite its aluminum diet, slightly over a hundred pounds more than Steiner's coupe, its best recorded 0-60 time ever is 7.5 seconds. This was achieved by leaving the throttle wide open during the shifts, a practice we don't indulge in ourselves.

Handling was about on a par with the boulevard Corvette, it managed to bottom out more severely cresting the Ride Road's big bump, but only just. Steering was smooth and slick, but, man, our arms aren't made of rubber, you know! At the risk of being considered stuffy and old-fashioned, I'd add that the extra \$13,400 mentioned before certainly brings value received. They both accelerate well (uh-huh), but they're entirely different sorts of automobiles. And who'd ever use a Ferrari as a tow car?

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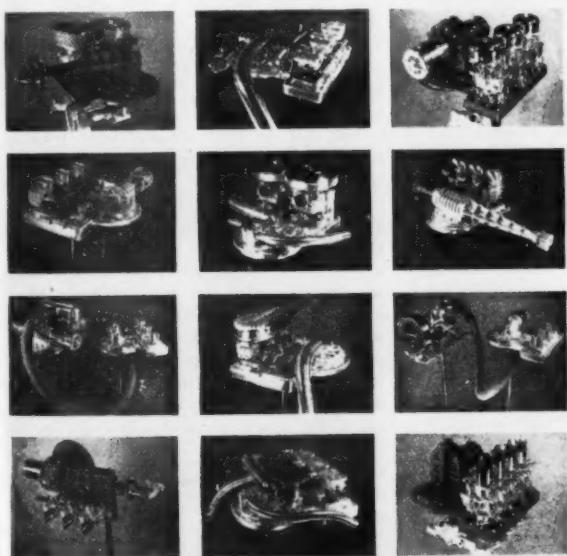
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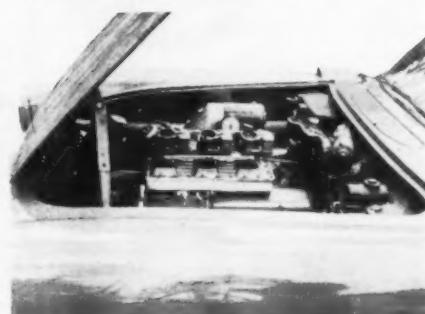
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Riverside

(Continued from page 39)

On the second lap, gasoline was detected leaking from Reventlow's clobbered Scarab and he was black-flagged. In their eagerness to get the car back into competition, Reventlow's crew made what officials considered inadequate repairs and the young millionaire roared back onto the track without waiting for a final okay from the technical steward. As a result, he was promptly black-flagged again, this time for ignoring a race official. Unfortunately, something seemed to go wrong at this point and when the uneven-tempered young driver slammed back into the pits, no one seemed able to tell him why he had been removed from the track. Charging over to the start-finish line, Reventlow became embroiled in a high octane discussion with the race directors. As a high point in the conversation, Babe Stapp, a former Indy driver working as a USAC official for the race, directed an enthusiastic if poorly aimed punctuation mark at the driver and car owner.

Though everyone concerned shook hands after the race was over, the Hollywood-type fight provided a climax for what had been a trouble-plagued week-end for Reventlow. During practice on Saturday, the three Scarabs he had entered were in the pits more often than they were on the track. After Reventlow ploughed one into a ditch and out of operation, the remaining two were barely glued together in time to squeeze in under the deadline for qualifying, with Reventlow taking over a car from his number three driver, Bruce Kessler.

Meanwhile, back on the track, the lone remaining Scarab was doing an excellent job of upholding the honor of American iron. The lap charts show that Hill held the lead for five laps, relinquished it to Daigh for two and then took over again for five more. But that was only half the story. The lead often switched two and three times on a single lap and on lap two actually changed hands twice on turn eight alone.

By the end of lap twelve, Hill was in second spot, apparently willing to bide his time on Daigh's tail until the proper moment came to move the Ferrari back into heavy contention. Unfortunately, on lap 24 he was forced into the pits with fuel pump trouble and returned a lap later in eleventh place. On the next lap, he was back in the pits again and went back on the track one lap and 15 seconds behind Daigh's Scarab. A third stop on lap 27 put him over two laps behind and beyond any hope of winning. On lap 58, he retired permanently from the race.

With Hill out of the serious running, Daigh had only to worry about keeping the car in one piece as he had an easily maintained 40 second lead over Gurney in the 4.9 Ferrari.

At the half-way mark—lap 31—the field was well spread out and apparently only some mechanical failure could alter the final standings. Daigh led easily with Gurney in second place. In third spot, to the surprise of many racing enthusiasts, was Bill Krause, who had been doing a brilliant job with his highly modified D-type

Jaguar. Behind him were Balchowsky, Behra and Ginther, all in the same lap as the leader.

As it turned out, mechanical failure did cause the only changes and the only excitement. Balchowsky's gear box—ironically, the only foreign-made item on his slab-sided monster—locked out of all but top gear and he dropped to seventh place, spending the last half of the race waving Behra, Ginther and Salvadori past him. With eight laps to go, a brake line burst on Daigh's Scarab, but he was able to maintain his lead because of the cushion he had built up and the car's consistently blinding speed on the long back straight.

Finishing in eighth spot was Bill Pollock, president of the California Sports Car Club, who seemed to have trouble keeping Al Dean's Lister-Corvette on the course. Following him were Ken Miles, second in the under two-liter class, and Bob Drake, third in the small car group.

Daigh averaged 88.8 mph for the 203 miles, but was unable to top Hill's 2:08.9, which was the fastest lap of the day and established a new course mark under competition conditions. Gurney hit the day's top speed, clocking 162 mph through the traps.

USAC's Indy aces failed to finish a single car and never even had one in contention, though Billy Cantrell, a sprint car stalwart, did an excellent and often brilliant job wheeling an underpowered Meyer-Drake special to a 16th over-all and a seventh in the under two-liter class. In all fairness, however, it should be pointed out that the USAC boys drove cars that were generally inferior to those driven by the sports car pilots. It should also be pointed out that some of them seemed more interested in excursions to Las Vegas and Palm Springs than they did in road racing.

Perhaps the attitude of some of them was best summed up by one of their mechanics just prior to the start of the main event. They felt, it seems, that they could run over the sports car clods without bothering to go to any special trouble.

Of all the Indy stars, only Johnny Parsons looked at all impressive. Starting Chuck Porter's Chevvy Special—formerly the Mercedes SLS special—at the back of the pack, he boomed up into 13th spot before over-enthusiasm sent him into the guard rail on turn six and gear trouble sent him into the pits to play the role of spectator.

Actually, mechanical difficulties and the 110 degree temperature had more than a little to do with the final results. Rathmann, for instance, never got started after someone warmed up John Edgar's Maserati-GMC Experimental with insufficient water in the cooling system and caused the engine to seize. Troy Ruttman's Kurtis-Buick suffered from tire and heating problems, both caused by the temperature on the track. Ray Crawford was also the victim of mechanical troubles and both George Amick and Roger Ward were without transportation by the time the race started.

Of course, the same things that bothered the USAC drivers bothered the sports car contingent. Hill's fuel pump was undoubtedly affected by the staggering heat, at least indirectly. Carroll Shelby, figured to be a strong contender in pre-race specula-

ion, went out early when the Temple Buell Maserati blew a head gasket. Pat Pigott eventually wound up as a bystander. And Masten Gregory, who must be given due consideration in any road race, pulled into the pits early in the going suffering from a combination of the heat and pain from a shoulder damaged in a racing accident some months ago. From that point on, he shared his 4.9 Ferrari with Bonnier, who did an excellent job, but the car took slightly ill somewhere along the way. It finally finished eleventh over-all.

Of the 47 original entries, 42 reached the starting line and only 24 finished.

For bringing the Scarab in first, Daigh collected \$5000-\$3000 for finishing first over-all and \$2000 for being first in class. Gurney earned \$1500, Krause \$1000 and Ginter \$500. Prize money ranged down through seventh place Balchowsky, who picked up \$150. The awards for the under two-liter class were set up on a similar sliding scale, Behra picking up \$1500, Miles taking home \$750 and Drake earning \$500 for his afternoon's work. All competing drivers who failed to finish in the money received \$75.

Two preliminary races preceded the United States Grand Prix. In the Times-Mirror Trophy Race, a 50-mile go for production machinery and amateur drivers, Skip Hudson drove to an easy win in a Chevrolet Corvette after Andy Porterfield, the coast's Corvette hot-shot, retired in the first lap with engine trouble. Bob Dickson and Bob Hoffman followed Hudson across the finish line. Both drove Corvettes.

The Times-Mirror Trophy Dash, a 25-mile race for amateur drivers in cars under 1400 cc, was taken by Jack Ross in a Cooper Sports. Ed Freutel finished a Lotus-Fiat second and William Molle's Panhard was third.

Although the United States Grand Prix was the first event of this nature attempted on the West Coast in so many moons, it did prove a number of points, at least to western racing enthusiasts.

For one thing, it proved that an international reputation is no guarantee of victory or even of supernatural driving ability. While fourth-ranked Salvadori left with the crowd smothering yawns, Behra had them talking about the beauty of his technique and Bonnier left quite a favorable impression, particularly among those who are students of cornering techniques and lap times. Obviously, however, most of the talk centered around the fact that the first three finishers were all the products of American road racing, none of whom had any particular reputation either in Europe or in the United States outside of sports car circles. Apparently, American road racing can produce drivers who don't have to take off their hats to anyone.

Secondly, the race showed that it's possible to use American components to build a car capable of holding its own against Europe's best, opinions of foreign experts and drivers be damned. The winning car, of course, was purely and completely American born and bred. Barreling the freak circumstances surrounding the retirement of the Reventlow-driven Scarab and the failure of the only foreign-made part on Balchowsky's Buick Special, two other American products might well have finished well up in the pack.

(Continued on page 64)

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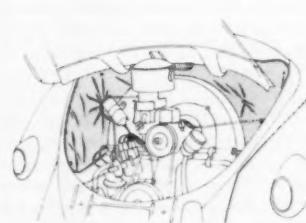


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64

Riverside

(Continued from page 63)

Finally, the week-end activity proved that road racing can be something more than a minor sport in the United States. As a matter of fact, if the first United States Grand Prix is at all indicative, it would seem that road racing can eventually tower over all other sporting events in this country.

Not that all was sweetness and light, of course. There were troubles. Some drivers felt that the prize money was inadequate in view of the size of the gate and all agreed that the race was one of the most over-organized events in the history of Southern California. A certain amount of organized confusion cropped up in many quarters, some ideas—such as requiring all pit personnel to sign for passes both days, a practice that resulted in some drivers standing in line for over an hour and thus missing practice on Sunday—were more well intended than well advised, and spectators undoubtedly wished fervently for more access roads and increased concession facilities. Nearly all the problems, however, can be attributed to either big race jitters or to a lack of facilities for handling a crowd that exceeded all expectations. It can be smoothed out before another such event is run.

Apparently the backers also think so. Immediately following the race, Norman Chandler, president of the Times-Mirror organization, announced that the race was such a monumental success that it would become an annual event. It is understood that efforts are already being made to get it on the international calendar for next year.

Once professional road racing becomes firmly entrenched in Southern California it can only get bigger and better with each passing year. America, it seems, is about to emerge from racing's isolation booth.

JM & BR

Monza G.P.

(Continued from page 43)

or second place at half distance.

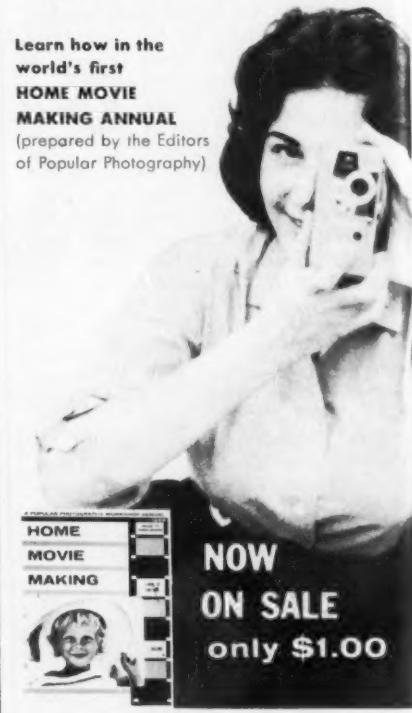
Hawthorn's clutch began to slip badly just after half distance, being especially noticeable as he shifted up coming out of the South Curve.

On lap 35 Mike came in for fresh rear tires in a typically frantic Italian pit stop which was repeated again on lap 37 by Phil Hill. Phil had already lost ground in the opening laps due to a ruptured rear tire, but Brooks didn't really get into Hawthorn's mirror until after fifty of the seventy laps had passed, and for ten laps the green car gained steadily, the gap narrowing to nothing on the 60th lap when Brooks came flying down the straight, his nose practically under Hawthorn's left elbow as he rode the Ferrari's slip stream halfway up the straight. Then, as if he had been told to wait to make the dramatic move until he was directly in front of the grand stands, Tony Brooks pulled out and swept by Hawthorn to go on to win the 1958 Italian Grand Prix at an average

(Continued on page 66)

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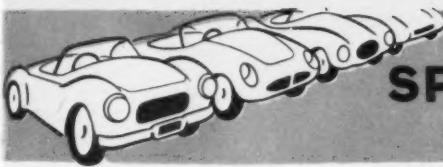
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INDEX OF ADVERTISERS

Sports Cars Illustrated — January 1959 Issue

PAGE NO.	PAGE NO.	PAGE NO.	
Accessory Engineering	63	Fisher Products	12, 15
Alken Corporation	64	Gordon & Co., Inc., R.	53
Arnolt, S. H., Inc.	57	Grierson Automotive Specialties	56
Art Center School	58	Haan, Vilém B.	48
Autobooks	13	Haneline, Ernie	54
Autoshoes	56	Hambro Automotive Corp.	Second Cover
Bentley Inc., Robert	9	Heath Company	49
British Motor Car Distributors, Ltd.	56	Hi-Fi Directory & Buyers' Guide	66
Buttafarri Corporation	57	Home Movie Making Annual	64
Castrol Oils, Inc.	47	Imported Auto Distributors (DKW)	7
Charmont Imports	62	Inskip, J. S.	Third Cover
Chevrolet Division of General Motors	5	Iskenderian, Ed	52
Columbia Motor Corp.	59	Jaguar	Fourth Cover
Continental Tires	58	Jones Box Corp., Jesse	58
Custom Automotive Accessories	56	Judson Research & Mfg. Co.	6
Custom Sports Car Accessories	48,	K & J Engineering	59
Devin Enterprises	14	Leson's Autosports Ltd., Chick	52
Downtown Engineering Co., Ltd.	58	Lincoln, Martin	52
Edith's Terry Covers	62	Longines-Wittnauer Watch Company	51
Electronic Experimenter's Handbook	60	M.G. & C. Co.	48
Exide	10	Mitten, MG	8
European Motor Products, Inc.	48	Oberhausen Engineering Corp.	61
Feldmar Watch Co.	63	Panab Corp.	54
		Peduzzi International	58
		Plasticon, Inc.	52
		Porsche	11
		Precision Automotive	58
		Rally Equipment	59
		Ramcote Products	58
		Riverside Records	3
		Robbins Auto Top Company	63
		Ronette	52
		Royze, Inc.	62
		Sporanca	56
		Sports Cars Illustrated Directory	55
		Sports Cars Illustrated Subscriptions	50, 56
		Standard-Triumph Motor Co.	53
		Stephens Co., Bruce	59
		Stevens Plastics	54
		Sturtevant Co., P. A.	64
		Thompson, Norm	58
		Thoroughbred Car Co.	56
		Trail Caddy, Inc.	54
		Universal Laminations	61
		Vocaline Co. of America, Inc.	63
		Wilco	48

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Monza G.P.

The Race

(Continued on page 64)

speed of 120.947 mph, not quite one mile an hour faster than last year's Vanwall win by Stirling Moss.

Results: 1958 Italian Grand Prix, September 7.

- 1st: Tony Brooks (Vanwall)
2 hrs.03'47.8" average speed
120.947 mph.
- 2nd: Mike Hawthorn (Ferrari)
2 hrs.04'12"
- 3rd: Phil Hill (Ferrari)
2 hrs.04'16.1"
- 4th: Gregory/Shelby (Maserati)
2 hrs.05'34.9"

Fastest lap: Phil Hill (Ferrari) in 1'42.9 (new record) 124.722 mph.

Driver's Championships as of Monza:

- 1. Hawthorn 40 points
- 2. Moss 32 points
- 3. Brooks 24 points

—Jesse L. Alexander

The Cars

THANKS A THIRD TIME to the heads-up driving of Tony Brooks, as well as to assorted maladies in the opposing camps, Old Man Tony can carve another notch in his Vanwall steering wheels. During the race proper on this very fast road circuit the Ferraris consistently proved to be the fastest cars, indicating without much doubt—if more proof were needed after Reims—that in spite of fuel injection and Harry Weslake's V6 Ferrari is producing considerably more power than the British four-banger. The Vanwall's superior streamlining only accentuates this deficiency.

The Vanwalls have changed little since we discussed them early in the season. The Nürburgring brought out steering dampers for the tie rods and radius rod braces for the upper front wishbones, a couple of makeshift but effective remedies for excessive front wheel hopping under braking. At Portugal external oil coolers were attached, this being a longer story altogether. You'll recall that earlier the oil cooling radiator was integral with the water core, running across the top of the latter. Their close proximity led to an exchange of heat between the water and oil as well as between both these and the air, in the process causing the water temperature to run somewhat higher than was felt necessary. And so with the grudging aid of Frank Costin, acting aerodynamics consultant and opposed to the alteration, film-block-type coolers were mounted in ducts affixed just above the long nose. The result thus far is that water temperature is cool as can be while the oil is away up, higher than ever before. Of course the overall drag of the car has been increased to boot.

Only Brooks' car did not have a new lower, more pointed tail shape, a refinement on the original hunchback look. No streamlining boon is claimed.

At Monza we saw the impossible happen at last—and it did indeed take a little longer. A Grand Prix Ferrari was fitted with DISC BRAKES. The particular units used were production Dunlop mechanisms, just as fitted to the Jaguar range, this set having been tested on Peter Collins' 250GT convertible. For some odd reason it has

been difficult for Ferrari to obtain samples of British disc units for testing purposes, let alone for actual racing. Since Mike had shot his bolt in the shape of a slipping clutch it was not possible to make a thorough check of their effectiveness, but there was plenty of lining left at the end and thus probably plenty of braking ability. The other three Ferraris were wearing drums identical in configuration to the cast iron/magnesium jobs but newly executed in aluminum with thick ferrous liners bonded in. As the only driver to use these for the full race, Phil Hill reported them to be free from fade. Such was definitely not the case at the German G.P.

Variety in Ferrari chassis was again evident, Hawthorn having his usual big-bottom-tube old frame with tubular top wishbones. Hill had the space-framed chassis which he drove at the 'Ring fitted with a Formula II engine; it, like von Trips' car, had forged top wishbones. Trips' early accident was personally unfortunate but doubly so since we had little chance to see the new 2453 cc Dino 256 engine in action. Boasting a stroke increase of one millimeter and possibly a new cylinder head(s), an output of over 300 bhp was cheerfully claimed. Must be potent in any case. Gendebien had charge of the coil-sprung ex-Monza-500 Dino chassis, which has since been run, with a 246 engine, at the Nürburgring and Oporto. Detail changes to the rear suspension have reportedly improved handling, but again no race checks could be made.

Oil cooling changes were also on the BRM agenda, perhaps anticipating warm Italian weather. The new external cooler on the right was supplemented by a few ribbon-wound coils tucked away behind the center grille opening, which once again has been deprived of its carb-feeding function. Also at Portugal some deterioration of the de Dion tubes was detected, two of the three new cars now having new tubes incorporating detail refinements to the radius rod mounts and the jacking points. While he was going Behra demonstrated that the BRM team have once more managed to find engine power at the top end and, like many entries, at one point was well on his way to a win. Perhaps this, BRM's first full season of racing, will give the team a proper lead for a winner next year. Don't forget that the current BRM car is some two years younger than the Vanwall, which only now is demonstrating parity to Italian designs.

The Maserati which gave Gregory and Shelby such a good ride is one of two such new 1958 cars in the Buell stable. Superficially identical, they differ in details of radiator design and ducting and feature large-diameter front brakes and a new transmission design. If concerted development could be carried out on its six-cylinder engine, Italy might again have two possible Grand Prix winners.

On this course the Climax-powered gang was wholly outclassed, though Trintignant's drive in Rob Walker's 2.2 liter Cooper was shaking up the BRM's and Maseratis until a new high fourth gear set proved faulty. The new Formula 1 Lotus has many charming features which SCI will bring you in full detail at a later date.

Karl Ludvigsen



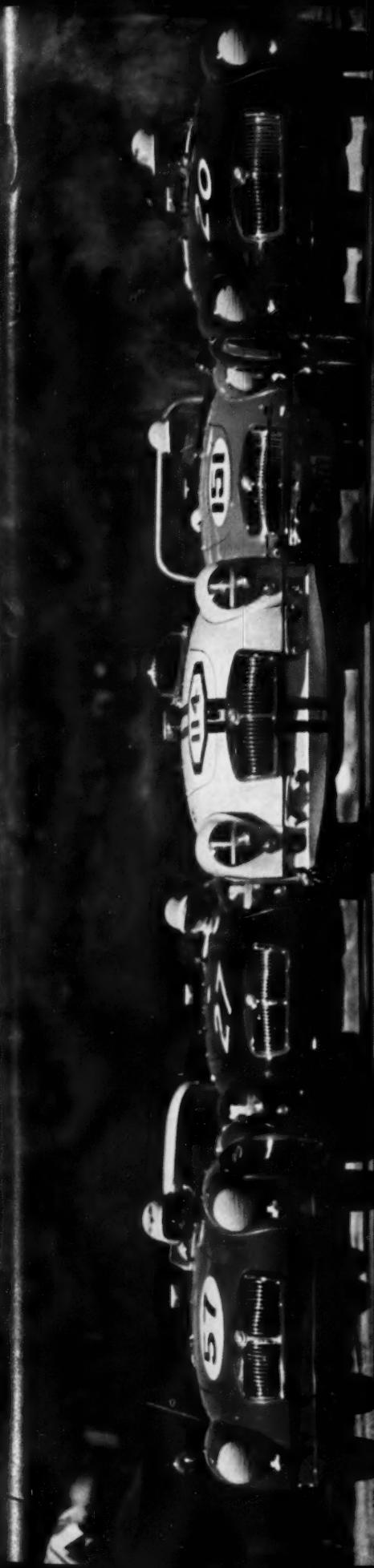
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